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MARKET PROSPECTS AFTER THE WAR.

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Foreword

In March of this year the Bureau of Foreign and Domestic Commerce issued a study "Markets After the War" in which an attempt was made to measure the post-war capacity for production in the United States. Subsequently, a series of articles, prepared by the Bureau's several industrial analysts and based on the findings in this study, were published in DOMESTIC COMMERCE, for the purpose of aiding the businessman to form a background on which to build his own post-war plans. It is emphasized here that these articles are not conclusive answers to any of the questions and problems that will arise in the post-war era, but merely serve as a guide for post-war thinking and planning.

Widespread interest and desire on the part of businessmen for a compact presentation of this material has made advisable the preparation of a pamphlet containing reprints of the series.

A compilation of the articles appearing in the issues April 29 through October, inclusive, has been prepared by Miss Elsa Rampendahl of the Publications Unit. Other articles on markets after the war are contemplated and will be published from time to time in DOMESTIC COMMERCE.

AMOS E. TAYLOR, *Director*
Bureau of Foreign and Domestic Commerce

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Contents

	Page
"Markets After the War"—Questions It Raises—*H. B. McCoy*	1
Post-War Markets for Coal-Tar Dyes—*F. B. Hillhouse*	3
Organic Chemicals—Post-War Planning—*J. N. Taylor*	6
Housing Appraised for Post-War Era—*J. Jos. W. Palmer*	8
Peacetime View of Building Industry—*J. Jos. W. Palmer*	10
Possibilities of '46 Cosmetic Trade—*L. A. Barber*	13
Outlook for Drugs in Post-War Period—*T. W. Delahanty*	15
Hypothesis of Post-War Shoe Markets—*J. G. Schnitzer*	17
Post-War Markets for Food Products—*F. H. Rawls* and *J. H. Stehman*	18
"Markets After the War"—Farm Equipment—*Paul Andresen*	20
"Markets After the War"—Industrial Machinery—*W. H. Myer*	22
Office Machines—*O. H. Jakes*	24
Railway Equipment in Post-War Market—*W. Rodney Long*	26
Future Outlook in Pulp-Paper Trade—*W. LeRoy Neubrech*	27
Peacetime Markets in Tires and Tubes—*S. Earle Overley*	30
Electrical Goods' Post-War Markets—*H. E. Way*	31
Future Outlook on Glassware-Pottery—*Edward J. Detgen*	32
Heating Equipment Post-War Markets—*J. V. McCarthy* and *W. B. Call*	34
Post-War Market for Hand Tools—*William B. Call*	35
Appraisal of Post-War Radio Market—*E. J. Detgen* and *Lawrence D. Batson*	37
Will U. S. Watches "Tick" in Peace?—*Donald S. Parris*	39
New Textiles Loom on Peace Horizon—*Robert P. Sweeny*	41
Apparel Markets After the War—*Robert P. Sweeny*	42
Consumer Travel in Post-War World—*E. C. Bratt* and *J. B. Crane*	44
Association High Lights—*C. J. Judkins*	46

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"Markets After the War"—Questions It Raises

By *H. B. McCoy*
Chief, Division of Industrial Economy
Bureau of Foreign and Domestic Commerce

"Markets After the War — An Approach to Their Analysis," is the subject of a recently released study prepared in the Bureau of Foreign and Domestic Commerce. This and following articles in DOMESTIC COMMERCE are intended to interpret these findings in terms of specific industries, with the objective of assisting businessmen in applying theoretical considerations of "Markets After the War" against the background of their own concepts of long-term planning.

Issued to Stimulate Thinking

Every businessman who has been thinking about or making plans for post-war business would find this pamphlet interesting. "Markets After the War" is provocative. It will arouse a host of questions in the mind of the reader — questions on the theories, assumptions, the hypothesis and general concept of the study, the techniques and methods of projection of a pattern of expenditures into the future, and even perhaps doubt about the validity of this kind of approach to long-term business planning. A primary objective of "Markets After the War" is to raise such questions to stimulate thinking by businessmen on their post-war problems.

Three Important Questions

Few will contest the now widely accepted proposition, on which this study is based, that a high level of employment and production must be maintained after the war is over. Beginning with this proposition, "Markets After the War" focuses attention on three important questions:

1. What would total business volume be if most of the people who will want to work after the war do have production jobs?

2. How does the war affect the possibility of reaching that goal? What will be the magnitude of the accumulated demand for goods? How big a backlog of purchasing power in the form of extra savings? What obstacles must be overcome?

3. What opportunities would such a national market offer the individual business? How can this market potential be measured?

Specialists Raise Further Questions

To most businessmen, the answer to the third question is of most direct interest and importance. In the articles prepared by the industrial specialists of the Bureau questions requiring further and detailed study will be raised. Conclusive answers cannot be given for any of these. Obviously, appraisal of the post-war markets must be left, in the final analysis, to those in industry who propose to earn their living in their own business after the war.

Before examination of the situation that may concern individual businesses in a post-war era, it may be helpful to review briefly some of the high lights of "Markets After the War" and the methods by which the pattern of expenditures for goods and services were projected into what is assumed to be a typical post-war year.

Study Is Not a Forecast

At the outset, it should be clearly understood that "Markets After the War" is not a forecast. There is no attempt to predict employment or appraise potential markets for specific products after the war. It is a starting point from which businessmen may wish to exercise their own judgment as to the probable situation confronting them in a post-war era. It should be emphasized also that "Markets After the War" is not an official suggestion or guide as to a desirable pattern of and relationships between expenditures for specific goods and services.

Completely in tune with the democratic spirit of our Nation, "Markets After the War" assumes that answers to the problems of the future must be obtained by the combined efforts of all our citizens rather than a selected few. As in all community efforts, some one person, group, or organization takes the initiative by pointing out the need for action, setting up a temporary goal or objective, and suggesting a method of procedure.

Need for Action Now

In pointing out the need for action, "Markets After the War" explains that proper planning "requires the aggregate effort of a thousand businessmen, each of whom has a detailed knowledge of the problems and possibilities of a particular enterprise."

An expanding free enterprise economy with high levels of employment is the goal — "We have calculated that if the civilian labor force which will be available after the war is effectively used, with unemployment held to a practical minimum and with 1940 hours of work, the country has demonstrated a capacity to produce almost 50% more than in the best pre-war year — 140 billion dollars of goods and services in 1940 prices or 165 billion dollars in terms of 1942 prices."

Method of Procedure

The method of procedure suggested by "Markets After the War" may be summarized as follows:

1. Review experience after the first World War. Although there are important differences, a brief survey of developments during and after World War I discloses striking similarities with current conditions. It is true that a larger part of the Nation's resources are now being channeled into the war effort thereby increasing their conversion problems, and that civilians are going without more things and accumulating more savings to be spent after the war, but "major wars usually have initiated rapid and extensive changes and usually have been followed by a substantial increase in national income and production over the previous level."

2. Study the trends in national income both in aggregate and in the detailed relationship of its component parts. To understand the national economy and to study and determine the effects of the war on post-war business activity requires an over-all picture of American business. Attention is directed to Table I and the explanations of "national income" and "gross national product" on page 7 of "Markets After the War." As indicated, "no manager could grasp all of the problems and possibilities of a large business without a financial statement."

Demand and Purchasing Power

3. Estimate accumulated demand and purchasing power. With the maintenance of a high level of production after the war and the corresponding increase over pre-war consumers' income, there will be a more than proportionate increase in the demand for consumers durable goods. This will be supplemented by the enormous accumulation of savings forced by the war — "Since the production of goods and services after the war will in large part create its own market, this accumulation of purchasing power should be more than ample to assure an aggregate demand for all the goods the available manpower can produce."

With reference to the capital goods market, it is pointed out that much of the enormous volume of war plant construction has been in a few specialized fields and that a large part of these facilities are not readily convertible to civilian production. Furthermore, the normal replacement of capital goods has been postponed wherever possible.

Higher Standards of Living

4. Develop methods for making accumulated demand and purchasing power effective. A peacetime level of production which approaches the capacity of available manpower after the war means a large increase over pre-war standards of living. This is a challenge to business enterprise. It calls for better market analysis, more sales research, more imagination and ingenuity in developing new products or new markets for old ones, and more strenuous efforts to improve promotion and distribution methods — "Consumers must be persuaded to buy more things than they have ever had before."

Prepare to Produce in Adequate Quantity

5. Work out the process of conversion from war to peace production. The maladjustments brought about by the war may leave business unprepared to produce in adequate quantity those goods which consumers will want. Thus, certain industries and communities may have a demand for more than they can produce for several years after the war, while other industries and communities may have a large

volume of unemployment — "To the extent that there is unemployment because of bottlenecks in physical plant, because the marketing, engineering and organization problems of conversion to peacetime output have not been solved, the purchasing power created by full production will no longer exist."

A Basis for Market Analysis

As a basis for market analysis and planning, "Markets After the War" presents, in brief, the following:

1. A calculation of the capacity labor force available after the war, if it is used effectively, with 1940 hours of work and a practical minimum of unemployment.

2. The resultant national gross product of 165 billion dollars in 1942 prices, if this labor capacity can be provided with productive jobs.

3. An analysis of the conditions which will make the high output a reasonable possibility; the purchasing power of high incomes and savings and the accumulated demand for goods; the need for effort on the part of industry to translate these factors into effective demand; and the difficulties that may be encountered in reconversion from war production to full production of peacetime goods.

4. A projection of the total expenditures of a 165-billion-dollar gross national product (1942 prices) by commodity groups based on past relationships.

To individual businessmen, perhaps the most provocative section of "Markets After the War" is the hypothetical projection (Table III) for a 165-billion-dollar year of expenditures by commodity groups. These projections are based on past relationships of expenditures for specific goods and services to the total expenditures for goods and services produced, without regard to such factors as the development of new products and materials, changes in the buying habits of consumers, and a host of other elements that may be involved.

It should also be kept in mind that the expenditures indicated for each product group are not in terms of factory or wholesale prices, but include all charges incidental to the transfer of the product to the ultimate consumer. The method and formula for arriving at these projections are not set out in detail but will be furnished upon request.

Projections Limited

The relationship indicated in the projection table should not be considered as an attempt at market analysis. The text of "Markets After the War" devotes considerable discussion to some of the principal limitations of the projections as they may be applicable to specific products.

It is up to each individual to decide for his own planning purpose how much of the total gross national expenditure he can reasonably expect in his business. Suggestions are given for relating his past sales to the gross national product for a period of years. This may assist him in adjusting the projection to some figure more in line with his experience.

Attention is directed to the fact that possible effects of export trade in the relationships between commodity groups are not injected into the projections, but sales of imported goods are included in the total expenditures for specific classifications. In normal times, export trade has been a substantial portion of total production for some industries. Since any attempt to project possible foreign trade in terms of specific products is impractical, any considerations in this respect are left entirely to individual judgment.

Data for Particular Industries

It is to these projections, which offer a starting point for discussion of specific commodity and industry trends, that the industry specialists of the Bureau have directed the articles appearing in this issue of Domestic Commerce. They are intended to high-light specific considerations bearing on a particular industry and to suggest further directions of discussion and thought. They do not discuss some broader economic questions, such as the demand for capital goods at a high level of employment, the aggregate investment opportunity, and the relationship between public and private investment. They touch only lightly on such other considerations as inter-industry relationships and the function of price in a free economy.

It should be emphasized that while the date of 1946 has been arbitrarily assumed as a post-war year, "Markets After the War" is concerned with a period extending at least several years beyond the year after the war. These discussions have been developed on that basis.

We hope that these articles on specific products will stimulate more detailed thinking and discussion in the respective commodity fields by all interested groups, including manufacturers, wholesalers and retailers. The Bureau of Foreign and Domestic Commerce stands ready to answer specific questions and to help in any way possible within the limitations imposed by its all-out war effort.

******

ROPE TO HANG THE AXIS

Manila, sisal, hemp, jute, flax, and ramie are essential materials to fill our military needs and only small quantities can be used for any but the most necessary civilian goods.

The armed forces must have fibers for rope, for ships' buffers, ships' caulkings, engine packing, binder twine, bagging, tarpaulins, insulations, fire hose, and shoe thread.

Manila fiber, a Jap prisoner, is the best of all rope materials. It is very strong and very light in weight and does not swell with moisture. But manila fiber has never been raised successfully outside the Philippine Islands.

Sisal, second only to manila in strength, is its best substitute. With the supply from the Dutch East Indies cut off, we must import all we can from Central America, Mexico, and British East Africa. Military demands for this valuable fiber are enormous.

Hemp, though not as strong as manila and sisal, nor an abrasive-resistant, is a valuable rope fiber suited to the "rat-line" uses. A sizable hemp-raising program, in Wisconsin and Kentucky, is expected to compensate in part the loss of Italian and Hungarian fiber. Even with this potential supply, only small quantities will be available for essential industry.

Jute is not only suited to some rope uses, it is the world's burlap fiber. Shipping sacks of Indian jute are needed in abnormally large quantities in wartime. We can now import only part of our bagging requirements and have to fill in with domestic cotton.

Versatile Flax

One of the most versatile of fibers is flax. Its strong fibers, almost invisible or relatively thick, are made into fragile laces and tough tarpaulins, fine-woven textiles and coarse towelings, fire hose, fishlines, and shoes. The Army needs all our linen thread to stitch shoe soles because it best resists mud and mileage.

Although the United States raises great quantities of seed flax for necessary linseed oil, fiber flax is not a large American crop. For many years, Oregon has grown considerable flax suited to twine and shoe thread; but extremely fine flax for luxury fabrics has remained a foreign product.

In the United States there are virtually no fibers, spindles, looms, or trained labor for the manufacture of luxury linens. Many European countries from which we formerly obtained our linens, such as France, Belgium, Austria, and Czechoslovakia, are now occupied. Such linen-making countries as Russia, Ireland, and Switzerland have little labor to spare for nonessentials, and no ship has much space to carry them.

From Rags to Money

But linen rag waste from England must still find room in hard-pressed merchant vessels. While the flax content in our paper currency has been reduced, some in the form of linen rags is required to make the money stiff, tough, and easy to handle.

Ramie, least known and least developed of the hemp family but the toughest and strongest of them all, may ultimately have great commercial success. Though difficult to process, it makes excellent rope. Like flax, it makes beautiful fabrics.

******

TIMBER FROM HELL

Believe it or not, timber from Hell and Purgatory is being used in the war effort. These are the names of two forest areas in Onslow County, N. C., which are owned by the State Board of Education.

A private lumber company is under contract to cut 5,000,000 board feet from Hell and Purgatory's full-grown trees.

Post-War Markets for Coal-Tar Dyes

By F. B. Hillhouse

CHEMICAL UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

TWENTY-FIVE years ago the parents of the American dye industry were indulging in very little post-war planning. They were far too concerned with the more immediate problem of seeing to the survival of their then 3-year-old infant. In this they succeeded surpassingly well, and their ability, vision, and courage were repaid in that infant's steady growth throughout the difficult formative years. By the middle 1920's, the industry might be said to have come of age and then, 10 years later, a veteran of three depressions, it had without any question reached maturity.

Industry Began in 1915

In 1915, when the British blockade of Germany caused an abrupt halt in imports of coal-tar dyes from the latter country, American dye consumers were in a panic for the reason that there was virtually no dye manufacture here. The effort and struggle involved in establishing the industry are now matters of history. Suffice it to say that, in 1940 when dye imports, useful but not vital since those few years back, were reduced to negligible proportions, there was no hardship entailed.

At the present time the coal-tar dye industry in the United States is doing well its wartime job of furnishing all the dyes required for the uniforms and equipage of the armed forces. It is supplying adequate amounts for civilian use and carrying on a substantial export trade, hampered in recent months by the shipping situation. So the situation is now vastly different from that existing a quarter of a century ago. The industry is now a full-grown and vigorous one that can contemplate the post-war era at home and abroad with confidence.

With minor exceptions, coal-tar dyes are not used directly by the public but, instead, enter into the processing of goods intended for ultimate public consumption. Not being end products, they are not specifically mentioned in table III of the Bureau's publication "Markets After the War," wherein sales by broad groups of commodities and services are projected into 1946 on the basis of an assumed gross national product of 165 billion dollars in that year.

This article, therefore, considers the place which dyes will occupy in a post-year economy such as is envisioned by the author of "Markets After the War," and for purposes of the projection uses the same hypothetical post-war year, 1946.

Through the operation of WPB conservation order M-103, the sale and purchase of coal-tar dyes are controlled. The exercise of this control, coupled with the shortage of certain raw materials essential to dye production, is preventing the accumulation of any appreciable stocks in the hands of manufacturers, dealers, or mills. At the conclusion of the war, military requirements for dyes, now amounting to more than half of total dye production, will drop off sharply. A certain amount of temporary maladjustment in the industry probably is inevitable, but the dye industry is, in this respect, more fortunate than are some others in that the equipment and, in most cases the raw materials required for the production of military dyes can readily be diverted to production for civilian needs.

It is to be expected that in 1946 stocks of all types of civilian dyes will be low and that conversion to peacetime production will be relatively easy. Availability of organic crude and intermediate chemicals in 1946 presents no serious problem; in fact, in the cases of benzol, toluol, phenol, and aniline oil, there may very likely be a superabundance. At present, these are classed as critical because of the heavy demand for the production of munitions, into which they and their derivatives enter. With a few exceptions, the present shortage of intermediates is due not so much to a lack of productive capacity as to the supply situation of the organic crudes.

When the pressure of military requirements is eased, there should be sufficient materials for such civilian dye needs as can now be visualized.

This study is premised, as was "Markets After the War," on several assumptions without which it would be impossible to approach the problem. The main assumption is a reflection of the commonly expressed view that the last Axis member will be defeated in 1945. Other assumptions can be summarized as follows:

1. 1946 will be the post-war year wherein industrial conversion from a wartime to a peacetime economy is effected.

2. In that year, there will be a high level of employment and consumer purchasing power.

3. The price structure will be substantially the same as in 1942.

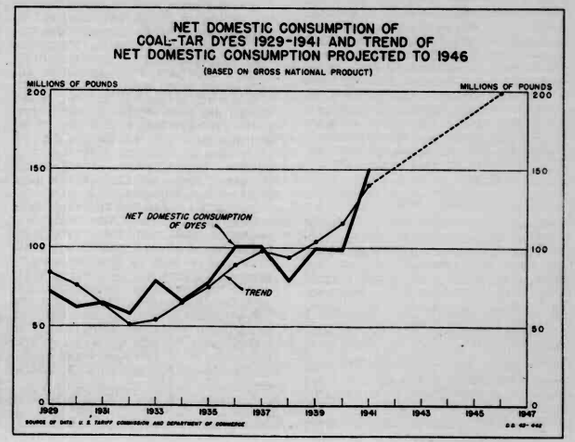
4. There will be no shortage of raw materials.

These, it must be emphasized, are purely arbitrary assumptions and not predictions. The reader may very likely disagree with them, and, in fact, it would be difficult to find unanimity of opinion in regard to any one of the premises.

Since we are concerned with the physical volume of production which determines the market for dyes, the possibility that the general price level in 1946 may exceed that in 1942, the last period for which adequate data were available, is comparatively unimportant for our purpose.

We would also point out that sales of dyes have been projected ahead in terms of pounds and not dollar value. This should inject no appreciable error inasmuch as the average cost of coal-tar dyes has remained fairly constant over a period of years.

An appraisal of the future prospects of the dye manufacturing industry, based



simply upon past performance, cannot be entirely reliable because of the fact that the dye-consuming industries are many and varied. Each has its past to look back upon and its future to plan for. Each produces goods for consumption and is subject to competitive influences and to the dictates of taste and fashion.

In the textile industry, for example, which in the aggregate is the largest outlet for dyes, there is an ever-changing relationship between the principal types of fibers, namely, cotton, wool, and synthetic. Each type has its special purposes, its advantages, and each presents a different problem to the weaver, dyer, and merchandiser. Changing requirements for lighter or darker shades can alone cause a big difference in dye consumption. It is naturally impossible to foresee what tastes in color will be and it cannot be assumed that pre-war or present standards will necessarily prevail. There may well be a reaction against pale shades and sparse prints with a demand for bright shades and full tones. Extremes are, however, the exception rather than the rule and after a period color tastes tend to return to normal.

Domestic Sales Utilized

It is felt that it would be misleading to link total sales of coal-tar dyes, in both domestic and export markets, to the gross national product for 1946, and assume that past relationships will hold good in the hypothetical projection. A trend has therefore been worked out utilizing domestic sales only.

Domestic sales bear a close relationship to gross national product and the former have therefore been projected into 1946 on the basis of the gross national product of 165 billion dollars assumed for that year in "Markets After the War."

As will be seen from the chart, the hypothetical domestic sales of coal-tar dyes in 1946 will be 200 million pounds, standard or type-strength basis. This figure has been arrived at by purely statistical methods, and follows a trend long established between domestic sales of dyes and the gross national product. It is interesting, therefore, to compare and check such a theoretical estimate against an appraisal of dye sales possibilities in 1946 based on the expected development of the various dye-consuming industries.

Textiles Largest User

First in importance from the point of view of dye consumption is the textile industry. It accounts, in the aggregate, for about 80 percent of domestic dye sales. This share is at present roughly subdivided into cotton, 55 percent; wool, 15 percent; and synthetic fibers, 10 percent. After the war, the proportion of the latter will almost certainly increase, possibly at the expense of both cotton and wool for the reason that, for dress goods, the newer fabrics offer a wider range in novelty effects besides having their own inherent qualities.

After the war, military procurements

of dyed cotton piece goods will certainly not comprise the 53 percent of total production in that category which they now do, but the extent of Army-held stocks and size of standing Army are important but unknown factors. Therefore, it is impossible to state to what extent civilian requirements will be able to make up for the loss of Government business. While it is felt that the physical volume of dyed and printed cotton goods for domestic consumption alone will drop off by 1946, such consumption will nonetheless be higher than the pre-war.

The armed forces now buy about half our total woolen output. After wartime procurements are completed there should be sufficient consumer demand to keep the industry operating at its present high level for possibly a year. After that, consumer demand is expected to recede to a pre-war norm.

Rayon cloth plays a minor role in clothing our armed forces. Rayon, including nylon and cellulose acetate, owing to the diversity of its types and its special adaptability to women's wearing apparel, appears destined to reach still higher consumption levels and 1946 should see rayon of all types in use at a rate better than present or pre-war.

While nothing has been said of the possible export requirements for dyed cotton, wool, and rayon goods, it is believed that after the war the United States will be the world's major supplier of textiles and dyes, and this opportunity and responsibility should result in a high over-all production level for both.

It seems reasonable to expect that at the conclusion of the war there will be released a stored-up domestic demand for new wearing apparel. Wardrobes will be depleted and will need replenishment, a large part of the population will have accumulated savings, a good portion of which will be spent on clothing. Many women will have worked in war plants, many will have been in uniform. They will not have had an opportunity for some time of indulging their fancy in clothes. Demobilization of millions in the armed forces will also create a large demand for civilian clothes, thus contributing to the demand for textile dyes.

Once the conversion from wartime to peacetime production has been effected the members of the textile industry will be intent on keeping their looms employed. To that end they will give the public the benefit of technological improvements acquired during the war and will offer new ideas in fabrics resulting from research carried on in the period immediately preceding the war. This will all be done with the aim of stimulating consumer demand, and, as textiles go, so go dyes.

Miscellaneous uses for coal-tar dyes, comprising about 10 percent of total domestic sales, include plastics, lakes, carbon paper, typewriter ribbons, writing and stamp-pad ink, wood stains, buttons, furs, feathers, and laundry blueing. For all these uses, with the exception of plastics, there does not appear to be any likelihood of an appreciable increase in dye consumption; therefore the post-war assumption with respect to these is for a continuation of the pre-war rate.

The war caused a halt in the production of plastics for civilian uses. In adapting plastics to wartime needs, much has been learned about their properties and their vast potentialities, and production has been developed to an extent that must surely result in extensive use of plastics by civilians after the war. The consumption of coal-tar dyes by the plastics industry, however, has not yet attained large proportions; therefore, there are no adequate past standards upon which to base an estimate of future requirements for dyes. Synthetic organic dyes can be used in all types of plastics although they are employed principally where brightness and clarity of tone are desirable. But generally speaking, no great amount of dye is required to achieve a pleasing color, and the volume of dyes consumed will never approach that used by the textile, paper, and leather industries.

Industry Requirements

The prospects for the paper industry in 1946 are highly favorable. (See "Future Outlook in Pulp-Paper Trade," June 1943 issue of DOMESTIC COMMERCE.) Not all paper products are dyed and it is estimated that in 1941 only 7 percent of domestically produced dyes were sold to the paper industry. On the basis of the article referred to, it is not unreasonable to look for as much as a 30-percent post-war increase over the 1941 level in the consumption of dyes for paper.

The leather industry used in 1941, in the processing and finishing of various types of leather, about 2 percent of the total sales of coal-tar dyes. Footwear manufacture used 85 percent of the total leather consumed.

The post-war demand for footwear, both in replacement and in the acquisition of new and specialized types, is very likely to exceed the pre-war demand. (See "Hypothesis of Post-war Shoe Markets," DOMESTIC COMMERCE, April 29, 1943.) There was considerable experimentation before the war for greater use of textiles and plastic materials in shoes. This trend, particularly as regards plastics, was halted by the war but there is every reason to believe that it will be resumed along with other peacetime developments. The production of shoes may therefore be higher in the immediate post-war period, but the use of dyed shoe leathers may actually decrease. Some of this loss, of course, will be offset by the use of dyes for coloring those materials used in replacing leather. Despite the factors noted above, the consumption of dyes in 1946 by the leather industry will probably be at the 1941 level.

In this discussion dyes have been treated on a quantity basis with no reference to any qualitative developments. The trend toward the use of faster dyes should not be overlooked. It will not be reflected necessarily in greater volume of production but will be evident in total values. The rigid specifications of the Army and Navy with respect to the fastness and durability of the colors used in the textiles procured by them have had two long-range results.

First, the industry and the public have become more conscious of quality and, second, the capacity to produce dyes of the Anthraquinone Vat series has been so materially expanded that the manufacturers will endeavor to encourage their increased use. This type of dye, the production of which has more than doubled since the start of the war, is used principally on cotton although it can be applied also on regenerated cellulose, such as viscose and Bemberg rayon, and to a limited extent on wool. It produces colors of the maximum obtainable fastness to sunlight and washing.

Export Possibilities

Exports, as stated above, are not a part of the hypothetical projection of dye sales into 1946. They are, however, of great importance and potentially can represent a much larger part of our production than they have in the past. In 1941 exports in pounds, on an "as shipped" basis, amounted to 16 percent of total United States production, expressed as standard strength. Adjusted approximately to the latter basis, the proportion of exports was probably nearer 20 percent. The f.a.s. value of United States exports of dyes in the same year was 16 percent of total sales. For a representative prewar period, 1937–39, coal-tar dye exports averaged, on a standard-strength basis, 15 percent of production and 9 percent of the value of total sales.

In looking ahead to 1946 in the export field, it would be preferable to base one's estimate insofar as possible on past quantities and values with due consideration for the new conditions arising from the war. Such an estimate is not attempted here, involving as it does country by country, physical, political, and economic developments, the nature and extent of which it is impossible to forecast. It is safe to assume, however, that, with the reopening of markets now closed to us, with ample shipping available, with a competitive position favorable to the United States, and with a vast unsatisfied demand for dyes, there should be a tremendous increase in exports. In fact, a great future in exports of American dyes to practically all the markets of the world is in store if only plans are made with boldness and foresight.

The added production needed to meet these export requirements, in addition to the high level of output envisioned for the domestic market, may very well establish 1946 as a record year with sales of coal-tar dyes in the neighborhood of at least 250 million pounds.

Post-War Planning

The recent semiannual convention of the *American Trade Association Executives*, with which are affiliated local clubs of executives in various cities, indicated that "Government relations" has been the foremost activity during the past year—owing to the necessarily vast amount of Government regulations pertaining to the allocation of raw materials, conversion to war needs, rationing, priorities, manpower, and so forth.

The ATAE meeting and scores of others during the past few months have shown that an entirely new field of association activity, post-war planning, may become the leading field of service during 1944, as well as being one of the more prominent ones in the present year, 1943. Hundreds of associations are cooperating with the newly formed *Committee for Economic Development*, which has already become the leading businessman's organization devoted solely to post-armistice readjustments.

The primary aim of the CED is to bring about full employment in normal civilian pursuits after the war, and to foster the basic philosophy of private enterprise. It is encouraging each trade association, each chamber of commerce, and each business firm to start at once in getting together information needed for the post-war era, based on surveys.

GIVE IT YOUR BEST!

To summarize, it is seen from the above that trade associations are comparatively new in the United States, that there has been a rapid increase in number, and that they have been helpful in various ways to the war effort.

What are the prospects for the next few years? One can hazard the guess that their efficiency in this new field of post-war planning will be a deciding factor. Based on data obtained from many associations and from CED, Chamber of Commerce of the United States, and National Association of Manufacturers' surveys, the following problems will be among those of outstanding importance to associations during the next few years following the end of the World War: reconversion to civilian needs; excess plant capacity; cancelation of Government contracts; post-war tax policies; removal of Government controls on business; and the over-all problem of after-war markets sufficient in volume to keep unemployment to a very low level in each industry.

Backed by the above-mentioned increasing support and constantly improving managerial efficiency, trade associations have before them the greatest opportunity ever presented to aid their industries and the public at large.

NATION'S ADVERTISERS "DELIVER THE GOODS"

The Nation's advertisers are going about the business of promoting Victory as wholeheartedly as they've always backed products and services.

According to recent estimates by the Association of National Advertisers, 1,250 national advertisers have already devoted 200 million dollars in space and time to furthering the war effort. And this total has been increased in no small measure by the contributions of thousands of local and regional advertisers. A case in point is that of three national advertisers who alone have initiated special projects that have resulted in the sale of more than a half million dollars' worth of War Bonds.

Secretary of the Treasury Morgenthau credits these thousands of advertisers with much of the success of the April Second War Loan Drive, which exceeded by about 5 billion dollars its 3-week quota of 13 billion dollars.

Organic Chemicals—Post-War Planning

By J. N. Taylor

CHEMICAL UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

THE RECENTLY issued brochure "Markets After the War," prepared in the Bureau of Foreign and Domestic Commerce, deals with the flow of finished goods, by commodity groups, to the ultimate consumer. No data are submitted therein for the chemical industry, as such. However, since chemistry is basic to all industry and since chemicals ultimately find their way directly or indirectly into every manufacturing process and into practically every manufactured article, their post-war market will largely be reflected in the post-war markets for other commodities.

Post-War Outlets

An important segment of the chemical industry produces synthetic organic chemicals, essential both in peace and in war.

Today, the synthetic organic chemical industry is contributing its products primarily to the all-out war effort, a repetition of its performance as a lusty youth in the global war a quarter of a century ago. At the close of World War I there were large surpluses of many organic chemicals. These were disposed of in various ways. For example, phenol was utilized in large measure by the then-rising synthetic resins industry in the manufacture of various plastics products. Certain military explosives, after modification, found outlets through agricultural channels.

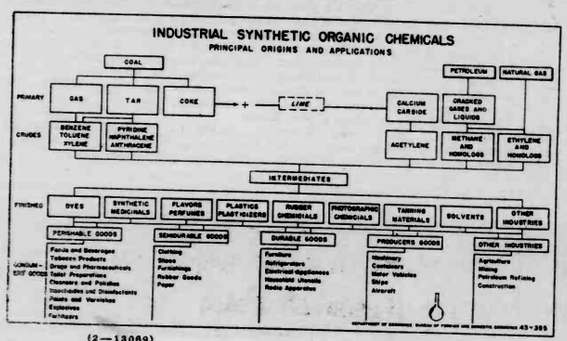
A similar situation will arise when the lights go on all over the world. Stocks, accumulated as a result of unprecedented military activities, then will be ready for assimilation by peacetime industries. The extent to which this assimilation can be effected and the rapidity of the process are problematical.

In addition to the problem of disposal of accumulated stocks, the industry will be faced with the need not only to maintain its production level so as to keep its equipment operating and its workers fully employed but, at the same time, to be capable of expansion.

The outlook is encouraging. The transition from war work to after-war pursuits will be made gradually. An unleashed civilian purchasing power will demand larger quantities of finished materials than the industry has been able to supply during the war. Exports will absorb another large part of the supply of organic chemicals.

A Manufacturers' Industry

The products of the synthetic organic chemical industry are essentially manufacturers' goods. Its end products, such as dyes, synthetic medicinals, flavors and perfume materials, rubber chemicals, plasticizers, solvents, and numerous others not grouped, are the starting points or primary materials of other industries. The number of these products is legion and their uses manifold. Thousands of organic chemicals are incorporated ultimately in dwellings and other structures, automobiles, airplanes, radios, shoes, textiles, paper, rubber, paints and varnishes, medicines, foods, and beverages. Consequently, a consideration of the relationships between the chemicals themselves and the industries to which they contribute would constitute a generalized approach to the post-war potential.



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By 1946, selected arbitrarily as the first post-war year, the scope and magnitude of the industry will have become tremendous. Just how tremendous we cannot know. However, we can determine, to some extent, the 1946 potential by analyzing trends within the industry and its relationships to other industries.

Large Expansions Indicated

Previous articles in this series on "Post-War Markets" have indicated a marked increase in the post-war activity of industries consuming organic chemicals. An appraisal of the housing situation indicates that after the war there will be a great shortage of dwelling units, and this will create a large-volume demand for construction and finishing materials. Drugs and pharmaceuticals will continue to absorb synthetic chemotherapeutic products, and by 1946 a possible 44-percent increase over 1940 in such domestic consumption needs is seen for the drug industry alone.

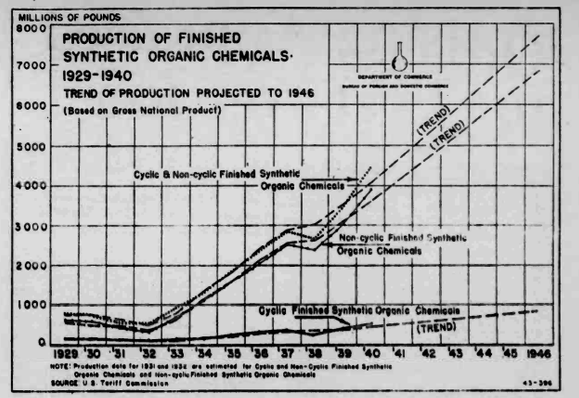
Tremendous opportunities for an expanded pulp and paper industry indicate greatly increased post-war chemical requirements. Rubber in its many applications will require immense volumes of organic chemicals—for manufacture of the synthetic variety and for processing both the synthetic and natural types. The radio industry is a large indirect user of organic chemicals in the form of plastics, dyes, solvents, and the like. A post-war annual retail sales figure of $880 million is anticipated for the radio industry in comparison with a $289-million estimate for 1939. The textile, leather, automobile, aircraft, food, and beverage industries, all of which are consumers of organic chemicals, will attain to much higher consumption levels following the cessation of hostilities.

Projection Bases Used

The 1946 potential submitted herein for the synthetic chemical industry is based upon projections of the output of finished products, rather than that of the primary or intermediate products that fan into end products, during the period 1929–40, in relation to the gross national product for that period. This procedure is followed because the post-war economy may not draw upon primary materials in the same manner or to the same degree as did the war or pre-war economy. For example, toluol, preeminently a war material, could not be used as a statistical base for such projection. Nor, for similar reasons, could phenol be selected as a base. On the other hand, there are products of the industry employed both in peace and in war. Methanol is a classic example. It can be used as an antifreeze and as a motor-fuel constituent. It can be made into formaldehyde, which itself has many uses. Formaldehyde, in turn, when combined with ammonia, forms hexamethylenetetramine—used medicinally and also as a plasticizer—or, when condensed with phenol, produces a plastic of the bakelite type.

The industry furnishes countless such examples illustrative of the versatility of its products and their all-time, many-purpose adaptability. However, no matter how versatile primary or intermediate products may be they are, in most instances, converted into finished products before they are actually absorbed into consumers' goods.

Therefore, to repeat, a measure of the synthetic organic chemical industry's post-war potential may best be found through a projection of trends in its finished products. Such quantitative methods are, however, subject to error. Adjusted and canceled contracts for war goods would tend to diminish a potential arrived at through mathematical projections. Developments brought about through research may profoundly change the picture of the industry in one of its segments or in its entirety. Ignoring intangibles, however, and assuming a gross national product in 1946 of $165 billion, and projecting the synthetic organic chemical industry's 1929–40 production trend in finished products to 1946, the figure for that year would represent a 74-percent quantity increase over 1940 in total output of such finished products.


MILLIONS OF POUNDS
PRODUCTION OF FINISHED SYNTHETIC ORGANIC CHEMICALS· 1929-1940
TREND OF PRODUCTION PROJECTED TO 1946
(Based on Gross National Product)
(TREND)
(TREND)
Cyclic & Non-cyclic Finished Synthetic Organic Chemicals
Non-cyclic Finished Synthetic Organic Chemicals
Cyclic Finished Synthetic Organic Chemicals
(TREND)
9000
7000
6000
5000
4000
3000
2000
1000
0
1929 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 1946
NOTE: Production data for 1931 and 1932 are estimated for Cyclic and Non-Cyclic Finished Synthetic Organic Chemicals and Non-cyclic Finished Synthetic Organic Chemicals
SOURCE: U.S. Tariff Commission
43-396

What of the Future?

Great as has been the industry's contribution in the past, even greater opportunities are presaged for the future. New discoveries and inventions, new applications of its products will enlarge its sphere of service. Changed economic conditions, as well as technological developments, will materially affect its future.

The forward-looking industrialist is giving thought to the many problems involved in planning for the post-war period. For example, he is coordinating his chemical research and plant-development programs with those for economic research and product distribution. He is evaluating, in terms of the future, the factors of fundamental and applied research, technological developments affecting volume of output, obsolescence of plant and equipment, production and operating costs, disposition of excess production capacity, raw-material availability, new modes of transportation. He is studying plant-conversion possibilities in an endeavor to anticipate diminished needs for some of his products and expanded requirements at home and abroad for others.

Numerous other factors will have a profound influence on the post-war situation of the industry both as to production and distribution. To what extent would a resumption of imports of natural organic products—rubber, camphor, and others—affect our domestic production of synthetic organic chemicals? What will be the effect of international cartels upon our domestic economy? Will United States output of certain chemicals be restricted because of patent licensing or other agreements between United States and foreign manufacturers? Will extension of our domestic distribution into international commerce be subject to world-market allocations? To what extent will the growing industrialization of Latin American and other foreign countries affect our home economy?

These and other pertinent questions bear directly upon the post-war scope and magnitude of the synthetic organic chemical industry and the extent of its activities. There is no question regarding the industry's greatly enlarged sphere of influence in the future through new products and new applications, or with respect to the attainment of high levels of production and employment.

WANTED—LABOR FOR FOOD-PROCESSING PLANTS

Skills developed in tens of thousands of family kitchens will be needed to help feed the Nation this year as women who have never before worked outside the home are urged to sign up for war jobs in food-processing plants.

Manpower is recognized as the most important single factor affecting the ability of food processors—canners and quick-freeze and dehydrator operators—to preserve 1943 crops for the needs of the armed forces, Lend-Lease, and workers on the home front.

By taking jobs in the food canning and processing plants nearest their homes, housewives—and businessmen who can pool their time—will be doing war work that will assure fighting forces the food they need and home folks the quantities allowed them under rationing. A dearth of labor at harvest-time will mean shortages next winter.

In 1943, the Army wants 71,000,000 pounds of frozen vegetables. To meet this need, the Government will require from the canning industry an amount equal to 60 percent of the pack of 1942—a banner year. Only by utilizing every possible means for the recruitment of labor can the industry cope with the gigantic task ahead.

Persons desiring to aid in the tremendous work of food processing may learn from local sources, particularly through newspapers and radio, exactly where and when to offer their services. In most cases the local offices of the United States Employment Service will be responsible for recruiting cannery and other processing workers. County agricultural extension agents will recruit farm workers. Procedure will vary somewhat according to localities, but these agencies will pull together in community mobilization.

Speeds Bandage Making

A machine to speed up bandage-making has been designed and built by two employees of the Sonoco Products Co. in South Carolina. Workers who have tested the machine report that production is increased by 50 percent.

The designer, who is dean of the technical staff, secretary, and chief engineer of the company, and the builder, a master mechanic who has been in the employ of the company for more than 40 years, are still working to perfect their device. If further tests prove its worth, the machine will be presented to the Red Cross.

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Housing Appraised For Post-War Era

By J. Jos. W. Palmer

Division of Industrial Economy, Bureau of Foreign and Domestic Commerce

It is generally conceded that the period following the war will be characterized by marked activity in the field of residential construction. A number of circumstances attest the reasonableness of this conclusion.

The United States entered the war with a housing deficit estimated to be in the order of 1 million dwelling units and that deficit has since mounted, it is variously estimated, at a yearly rate of between 4 and 5 hundred thousand units. If this last is true—and it would, if anything, appear to be an understatement in view of the present-day virtual elimination of private residential construction (except for a modest number of privately financed war housing projects)—the national shortage of dwelling units may very well be as great as 2½ or 3 million units by 1946. It may be even larger.

Additional Demands

To this total must be added the potential demand represented by the increased purchasing power which the war has brought to a large proportion of our population. There is, of course, no very reliable means of measuring this factor. Its size will depend largely upon the success of the control exercised over prices, the character and amount of taxes levied and collected, and the extent of the demand built up for other consumer goods by war-necessitated restrictions on their production and by rationing. In urgency it will probably top—unit for unit—the deficit demand described above. In other words, the deficit demand we may very well have with us always (though probably not to the extent anticipated above), whereas the war-created demand will be of shorter life and will require satisfaction before the war-created affluence is dissipated for other consumer goods.

Home-Building Outlook

A recent survey by the United States Chamber of Commerce revealed that at least a million families presently plan to buy a home within 6 months after the end of the war. This alone would constitute a market of boom proportions on the basis of pre-war standards—if it could be satisfied either within the period indicated or in double that time. It is, of course, in large part the war-created demand described above although it must follow that not all the latter is, necessarily, included.

To sum up—there is immediately in sight a post-war demand (or need) for a minimum of 4 to 4½ million dwelling units. Of this minimum, 3 million plus will be single-family dwellings with the remainder divided, at the rate of one to two or two and one-half, between structures containing two dwelling units and those containing three or more such units.

An intensifying trend toward the erection of multi-family dwelling structures and away from the single-family has been evident for a number of years to become especially marked in the decade between 1930 and 1940, when, despite a numerical increase, the proportion of dwelling units in single-family structures dropped from above three-quarters of the total to just above seven-tenths. The number and proportion of two-family structures to the total followed a generally similar trend. Not so, however, with units in structures containing three or more dwellings. The number of these nearly doubled over the 10-year period and rose, in proportion to the total, from an eighth to nearly a fifth.

Regions Vary Somewhat

By regions the picture varies somewhat from the above. While countrywide, the decline in the proportion of single-family dwellings was considerably more marked in the South and West than in the East. The number of two-unit dwelling structures actually increased slightly in the South and West to be more than offset by reductions in the East. The increase in multi-family structures was general but was more pronounced in the South than in either the North or the West.

With so large a proportion of the housing accomplished subsequent to 1940 in the multi-family class, it may be that fully one-fifth of all the dwelling units available today are to be found in structures containing three or more such units. This fact and its implications should not be lost sight of in appraising the extent and character of the post-war market for residential construction.

The foregoing is only one part of the demand side of the picture. Activity in post-war residential construction will take three principal directions—the erection of new dwellings or of structures containing dwelling units (described above), the conversion of old structures into the equivalent of new, modern dwellings or dwelling units, and, third, the repair and maintenance of existing structures. All will be major components of the post-war market for building materials and for the services of building contractors.

Statistically the erection of new dwellings and the conversion of old structures are not separately distinguished (because of their basic similarity, i. e., the provision of dwelling units not previously available). No means exist, therefore, for even an approximate appraisal of the comparative position likely to be held by each in the post-war period. However, this much seems evident—conversion will almost certainly be undertaken on a proportionately larger scale than ever before. And, since conversion customarily involves more changes to the interior than to the exterior, this trend may very well be reflected in a reduction in the sale of heavy construction components (in relation to total expenditures) in favor of greater outlays for lighter materials, decoration, insulation, heating, lighting, and so on.

Government Important Factor

For reasons that are obvious it presently appears unlikely that the Federal Government will continue to be an important factor in the provision of new residential construction in the post-war period. On the other hand, it has been proposed that, to facilitate both public and private construction after the war, the Federal Government should finance the purchase by interested municipalities of the so-called "blighted areas" which exist in nearly every one of them. What would be done with such areas once they were purchased would, of course, depend largely upon local needs and conditions. In all events it is to be expected that such a program, if undertaken, will be directed toward the maintenance of property values rather than their reduction or destruction.

Conversion Possibilities

This suggests that conversion of existing structures rather than their replacement might be the more reasonable, more economic, and, in the aggregate, the more profitable course. To be sure the erection of model housing developments will, under certain circumstances, be the only course that could be justified for the rehabilitation of these blighted areas, but these, in direct proportion to their size and attractiveness—physically and from the standpoint of the cost to the occupant—will curtail the total volume of privately financed and erected housing to be accomplished.

The place of repair and maintenance is somewhat clearer. Over the past 14 years expenditures for this purpose (as far as it has been possible to ascertain them) have averaged 46.5 percent of the sums spent on new residential construction, being at their lowest (proportionately) in 1929—26.6 percent—and at their highest in 1933—94.4 percent. With a large volume of new building in prospect for the years following the war, it seems probable that this factor will tend toward the lower rather than the higher percentage despite the fact that, as is well known, repairs to residences have, in very many instances, had to be deferred. The result of this deferment may, therefore, be a larger actual expenditure for repairs and maintenance although, in relation to total outlays for residential building, the total may constitute a substantially smaller proportion than the average for recent years.

Local and National Obstacles

So much for the demand side of the post-war residential construction picture. The demand already exists—and, depending upon circumstances and the length of the war, may be intensified or reduced. There is hardly the remotest possibility that it will be completely overcome. On the other hand, satisfying it will call for the exercise of all the ingenuity and all the effort of which the construction industry is capable.

The obstacles which the construction industry will have to overcome will spring from a number of sources, local and national. In any appraisal of, particularly, residential construction activity the many purely local factors must not be lost sight of. In fact, these factors will constitute major determinants not only of the volume but also of the character of the work accomplished in individual communities. Builders and building material dealers in each community should, therefore, clearly be in the best position to measure them and to evaluate their potential effect upon their operations in the post-war years.

Building Code Influence

There is, however, one essentially local factor which is the common problem of a large number of individual communities—the building code. Especially in areas where war industries have been established, existing codes have usually had to be relaxed in recognition of the necessity for the accomplishment of large amounts of construction with limited quantities and types of building materials. It remains for each such community to determine whether these modifications should be retained as in the public interest or to be modified to some middle ground. Many codes will, of course, be reinstituted in full pre-emergency form and detail, others will be modified in the light of wartime experience. Whatever the course followed, the operations of the local building fraternity will be determined in consequence.

Effect of Basic Materials

The anticipation of a high national level of employment and productivity throughout industry generally in the post-war period is not without certain ominous aspects from the standpoint of the residential construction/ industry. This situation arises out of the basic character of so many of the materials employed. Steel and lumber are notable examples. Both find extensive use not only in construction but also in the production of a wide range of consumer goods. These goods will also be in great demand in post-war years, and will require large quantities of the same basic materials (if not always the same forms) which the construction industry must employ. Will there be enough of them to satisfy all demands or will the building industry have to get along with less than the total quantity it would require to build all the houses (and other structures) for which there will be a market, to do all the conversion for which there will be opportunity, and make all the repairs of which the present housing plant stands in need?

Markets After the War

Interest aroused in post war planning by the recent release of Markets After the War has been without precedent. The Editor has been advised that the study is being reprinted by the Committee for Economic .Development, and on May 13, at the request of the Hon. Dennis Chavez (Senator from New Mexico), the study was ordered printed as a Senate Document.

"World Thinking"

It is also necessary in this connection to consider the effect of what has been described as "world thinking" on residential building after the war. Large populations have had their homes destroyed and their means of livelihood taken from them. It is proposed that, to expedite rehabilitation, both be restored. And this in turn means that, at the outset, large quantities of building materials will, along with foodstuffs, clothing, machinery, and so on, have to be sent these countries. As far as our domestic building industry is concerned this may very well mean that, to the extent these shipments are made, supplies of a number of materials will be limited. With effective price control this alone might occasion localized curtailment of construction activity—without such control the resulting higher prices of material would but intensify this tendency.

Foreign Demands

There is also the demand for building materials to be expected from the other American Republics. All of these customarily draw on United States and European sources for supplies of many of the building materials they customarily use. Access to both sources to the full extent of the existing demand has been denied these countries for many months and will continue by force of circumstances to be denied them for the remainder of the war. This pent-up and mounting demand, reinforced by the monetary reserves being built up as the result of the heavy purchases of agricultural and mineral products being made for United Nations account, will be reflected in heavy calls for building materials (among other products) immediately the war is ended. Satisfaction of these calls will, of course, but further reduce supplies available for residential and other building in this country.

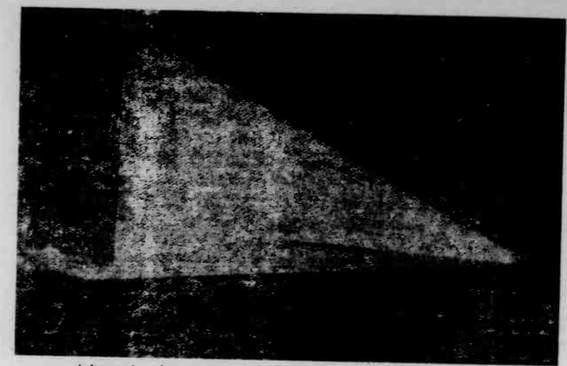
Much thought, not unmixed with fantasy, has been and will continue to be given to the physical pattern that will be taken by post-war residential construction. Precisely what form this pattern will take cannot be said, especially since it is almost sure to vary from city to city and section to section throughout the country. From present indications, however, it seems unlikely that, as far as individual dwellings are concerned, there will be any substantial change in prevailing exterior designs. These are essentially the product of evolution, having long since proved their over-all suitableness to the demands made on them by their surroundings and the locally prevailing climate. In the face of this demonstration the average home owner, being essentially conservative, probably will require strong persuasion and long-time and convincing evidence that some other style of structure will give him as much for his money.

Anticipated Interior Changes

Interior design, however, will probably change in rather marked degree, in reflection of improvements made in insulation, heating and lighting equipment, and other similar household facilities. These, in turn, may be expected to dictate the arrangement of rooms, their decoration, and, especially as regards kitchens, bathrooms, laundries, and so on, their operational efficiency. Materials and equipment which contribute to comfort, ease of management, and low operation and maintenance cost should find ready acceptance in new building, in the conversion of outmoded structures, and in the repair and maintenance of existing home units.

Prefabrication's Place

Prefabrication, also, will have a definite place in the post-war picture—a considerably larger and more prominent place than it has enjoyed before. There are strong indications that the successful producer of prefabricated houses will be the one who conforms to national preferences in exterior design and who combines that design with attractive, livable, and efficiently arranged interiors. Even so, it is probable that his volume of sale may very well always reflect the understandable limitations which assembly-line production must of necessity place on the materials he may employ and the styles and variations within styles of structures he can produce, sell, and ship. The resistance inherent in so many against buying a home from a catalog may very well prove the prefabricator's greatest stumbling block. But, to repeat, prefabrication will have a larger, a growing place in the post-war single-family residence picture, especially in the under $5,000 class of dwelling for which, numerically at least, the country has greatest need.



A large aircraft assembly plant. What effect will these buildings have upon the post-war construction market?

Peacetime View of Building Industry

By J. Jos. W. Palmer

Construction Unit, Bureau of Foreign and Domestic Commerce

PRIVATELY financed building construction rather naturally divides into two broad classifications—residential and nonresidential. Curiously, over a period of years, and despite substantial variation from one year to the next, the sums expended annually for new construction by private interests tend to be rather equally divided between these two groups.

Residential building, as referred to herein, is limited to the erection of dwelling facilities in nonfarm areas. Nonresidential building, on the other hand, is somewhat of a misnomer in that in addition to strictly nonresidential and public-utility construction it includes all building, residential and nonresidential, done on farms.

Factors to Be Considered

The prospects for residential building in the first whole post-war year, hypothesized as 1946, were discussed in the June 1943 issue of DOMESTIC COMMERCE. The purpose of the present article is to complete this review by describing some of the factors which may affect activity in the nonresidential construction field at that time.

The post-war future of private nonresidential construction is occasioning much concern especially in respect to the volume of industrial building which may be anticipated for accomplishment in 1946 and succeeding years. Since industrial building, combined with commercial construction, annually accounts for from three-quarters to four-fifths of all nonresidential building (excluding public-utility and farm construction) the reasons for this concern are obvious.

The volume of post-war industrial construction—the erection of new structures to house processing, mechanical, and manufacturing facilities—will largely be determined by the extent to which the war plants constructed during the past several years are susceptible of being and actually are converted to the needs of peacetime industry. Time was when the decision to erect a new industrial building and the selection of its location were largely determined by the availability of raw materials, of the necessary labor force, and the relation of the proposed site to the market to be served. These will continue to be important factors in the post-war era, but to them will then be added a further, and quite possibly dominant, factor of the availability of an existing war plant building which could satisfactorily be employed to house the new plant.

In such an instance the suitability—or adaptability—of the war plant to the enterprise in mind will have to be weighed against the possible advantage of erecting a plant especially designed to meet the requirements of the new enterprise, with the determining factor in many instances being the relatively immediate availability of the war plant versus the not inconsiderable amount of time required to design and erect an entirely new plant. It is certainly to be expected that, in the absence of other major considerations, the ability to get a new enterprise or branch plant into production through the utilization of existing factory buildings will prevail over the most plausible proposals to erect a specially designed building.

The whole problem of the use of war plants by industry in post-war years hinges on their location and their design. Either may prove an insurmountable obstacle to their successful employment. The plant built 5 miles out from town in an erstwhile cornfield may be left standing idle because of its location, despite any obvious advantages inherent in its design or construction. Or, if its construction permits, it may be demounted and moved to another and more favorable site. And by the same token, a plant of special or unusual design, although located favorably, may go unused for want of an occupant whose particular needs match the facilities the plant has to offer.

Building Will Not Stop

This, of course, is not intended to imply that there will be no industrial building after the war. Far from it. For one thing, as just illustrated, not all war plants are of such character or are so located that they can be economically utilized by a company operating on a peacetime basis. Specialized plants—such as those designed for shell and bomb loading, shipyards, and shipways—can only in the most unusual instance be successfully put to uses other than those for which they were originally intended. Huge plants—such as those designed to house production lines for larger aircraft—could be utilized in their original form only by companies whose manufacturing operations are to be on as large a scale as those for which the plants were originally intended. On the other hand, it is not inconceivable that these same huge plants could be subdivided so as to house a number of smaller manufacturing or assembling operations on, perhaps, some basis comparable with that under which large office and loft buildings are presently managed.

Three-Part Market

The post-war market for industrial buildings has been described as comprised of three parts—the first, consisting of companies having available plants built for war work; the second, of companies which need new and more efficient plant facilities to enable them to compete effectively with plants in group one; and the third, of companies which, but for delays and restrictions imposed by the war, would have erected new plants or additions to old at some time during the past several years. While the essential difference in the position of companies as they fall within the three groups is plain, it is equally clear that the inclusion of a given plant in either the second or the third group does not necessarily mean it will not be able to satisfy its needs from among available war plants.

Similarly subject to variation are the conclusions reached through the somewhat wishful thinking of those who seek to measure the extent of the backlog of industrial construction on the basis of the failure of specific industries in recent years to build new plant facilities at a rate comparable with that maintained in earlier years. The result had—interpreted to indicate a measurable shortage of specific facilities—may possibly approximate the need of the particular industry for additional facilities, though even that is open to question. Certainly, in view of the availability of so many war plants, it cannot be held to measure the volume of foreseeable post-war construction in that individual field.

Commercial Building Outlook

Although it is by no means assured, the outlook for a high level of construction activity seems definitely better in the field of commercial building, especially for the over-all post-war period if not for 1946 specifically. For one thing, whereas post-war industrial construction will be limited in volume by the several war plants to be available for use at that time, commercial building should experience no such competition. In fact, a cursory examination would seem to indicate that the greatest obstacle to post-war commercial building will be found in the large number of structures made vacant through businesses having been forced to liquidate for want of adequate merchandise or help with which to continue in operation.

In connection with the potential need for commercial construction, it may be pertinent to point out that, whereas dollar expenditures for new commercial building increased year by year from 1938 to 1941, these expenditures actually comprised proportionately less of total outlays for nonresidential building in each successive year of this period. In other words, while the 276 million dollars spent in 1938 for new commercial building made up 40.4 percent of the total cost of the nonresidential building done in that year, the 388 millions so spent in 1941 equaled only 29.7 percent of the total. The proportion in 1942, it may be noted, was even less—20.3 percent—revealing the extreme disproportion existing between commercial and industrial building in that year.

Consideration of Needs

The term "commercial building," as here employed, includes the erection of such structures as bank, store, office, and loft buildings, garages and service stations, and warehouses, to name a few principal types. It follows that the construction of all of these will not be equally active in the post-war period—that local circumstances will largely determine the degree and character of activity in each field.

However, there may be a more general attention given to certain types of needs. For instance, the point has been made that, in the broader sense, the erection of facilities specifically designed to most efficiently serve the wholesale trades has, on the whole, heretofore been neglected. Too often a wholesaler's warehouse has been any structure to which he had access and which had a reasonably sound roof and enough floor space on which to store his goods. This situation has reduced the efficiency of the distributive mechanism at the wholesale level and increased the cost of handling the merchandise traded in. It is now proposed to correct this through the design and erection of special types of structures peculiarly adapted to the specific function to be performed.

One such design that has attracted considerable attention—basically a central elevator surrounded by a series of storage rooms with the floor of each somewhat higher than the preceding one and with the whole surrounded by a continuous ramp down which would move dollies loaded with package merchandise picked up as each storage room is passed—has been developed and described by W. H. Meserole in an article on page 4. While the particular design described is admittedly not of universal application as a solution to the problems of the wholesale distributor, structures similarly adaptable to specific functions should have wide possibilities in the post-war distributing field and thus help to swell the volume of commercial building in 1946 and subsequent years.

No Straws to Show Wind

There are no very reliable straws in the wind to indicate the course of post-war construction activity in the religious, educational, social and recreational, hospital and other institutional, as well as miscellaneous nonresidential building fields. Under normal circumstances expenditures for new construction in these several fields vary remarkably little from year to year. The rigid curtailment of all nonessential construction of course sharply cut 1942 activity and will even more seriously reduce that of 1943 and subsequent years of the war. However, it appears a moot question whether these restrictions have actually created any substantial reservoir of planned construction which only awaits the freeing of the necessary materials to get under way. Certainly some of this construction, held in abeyance by force of circumstances, will be effectuated in 1946, but much of it may never be realized or in the interim will have been replaced by other and different plans.

Public utility construction has been both stimulated and impeded by the war—stimulated by the necessity for providing new facilities and services for countless camps and naval stations, war plants, and war housing developments, and, simultaneously, impeded in the performance of its normal activity of providing, in accordance with long-term plans, additional facilities with which to serve the growing needs of the civil population. The over-all effect of the redirection of this development work was to maintain expenditures for new public utility construction in 1942 at levels substantially higher (in proportion to 1941) than was the case with any other field of private building. In fact, whereas the outlay for all private building was down 45 percent in 1942, public utility construction was off only 10 percent.

It should not be assumed, however, that this enforced suspension of its normal expansion program created a post-war construction backlog of proportions comparable with the volume of scheduled work that had thus to be held in abeyance. For it must follow that some, although clearly not all, of the war-necessitated public utility construction will find sound use in the years following the war and to this somewhat uncertain extent the backlog of postponed work will be reduced. Further, it is to be expected that, in the interests of economy, wartime facilities which cannot be used in place upon the return of peace will, in many instances, be dismantled and re-erected elsewhere to serve as part of the industry's long-planned expansion.

Transportation and Power

For many years the railroads have accounted for, on the average, nearly a third of the annual total of expenditures for new construction in the public utilities field. They may be expected to continue to be an important factor in post-war years, especially in view of the tremendous drain which the war has made on all railroad facilities. On the other hand, it must be remembered that, just as the war has greatly increased the burden placed on the railroads owing to the enforced curtailment of all other forms of transportation, the ending of the war will return these competing transport media to at least their former places in the over-all transportation picture.

In the case of transportation by air it now seems indicated that competition from this source will be sharply increased and will extend not only to the carrying of passengers and express merchandise but to many lines of freight traffic as well. What may be the effect of this intensified competition and that from other media on the post-war building program of the railroads cannot presently be determined, but it seems reasonable to assume that it will not result in there being any substantial increase in expenditures for railroad construction over the levels of recent years.

The electric light and power industry is another major factor in the post-war new construction picture of public utilities generally. There is no question but that shortages of material and restrictive regulations substantially curtailed the greater part, if not all, of the program of normal expansion of facilities originally contemplated for accomplishment during the war years by the industry's long-range plans. On the other hand, facilities were, in many instances, considerably expanded to make possible service to all the various kinds of war establishments. Some of these last will, of course, have no immediate utility in the post-war period. Others, however, are so located that they can be assimilated without major change into the industry's deferred expansion program. Therefore,

to the extent that this last is possible, the post-war construction program of the electric light and power companies must be considered to be already accomplished.

The present and anticipated post-war position of the telephone industry virtually duplicates that of the electric light and power industry. Expenditures for new construction have been maintained at high levels in consequence of the required extension of facilities to serve the various military establishments, war plants, and so on. Some but not all of these wartime extensions are so located as to fit into the post-war picture and therefore will serve to reduce the volume of deferred construction which, otherwise, awaits the end of the war for its completion. The difference between these two factors—the volume of new construction deferred and that which wartime building will replace—will be the measure of the new telephone facility construction this industry will be called upon to perform in 1946 and following years.

Pipe-line construction by private interests may also be active in the post-war period especially in those coastal areas formerly and still largely dependent on sea-borne transportation of their supplies of fuel oil. The extreme susceptibility of ocean transportation to interruption in time of war has been brought home alike to producers, distributors, and consumers of petroleum products through the medium of rationing. Whether this will be forgotten with the return of peace remains to be seen, but presently it at least seems likely that with the return to availability of the materials necessary to pipe-line construction additional pipe lines may be constructed to serve these coastal areas.

Over the period since 1929 expenditures for new farm construction of all kinds have averaged 6.6 percent of all private outlays for new construction—ranging from a low of 3.8 percent to highs of 10.4 and 10.5 percent in 1933 and 1935, respectively. Actual dollar expenditures, after declining from the 300-million-dollar level of 1929 to a depression low of only 85 million dollars in 1932, thereafter rose without recession through 1941 to reach another 300-million-dollar peak in that year.

Shortages of labor and materials, and more particularly the constantly mounting difficulty of obtaining the latter, served to sharply reduce farm construction outlays to only 195 million dollars in 1942. These same conditions, intensified as supplies of most materials declined in rural areas to a point where it was almost if not quite impossible to procure usable quantities, may serve to halve the 1942 total in 1943, or to a total under that of any recent year except 1932.

The effect of these reductions in the volume of new farm construction has been, of course, to build up a sizable reservoir of requirements awaiting satisfaction in the post-war era—a demand which will have to compete with other demands of generally similar origin for such supplies of skilled labor and of building materials as may then be available. It is a question, however, whether this farm demand has or will assume the definiteness or the degree of actuality which appears to characterize the demand for nonfarm residential construction and for other types of war-deferred building.

The farmer's need for new and additional facilities is essentially a current one. If he is forced to get on without new buildings (and other new equipment) during a period when he is being urged to increase his output, it seems not unlikely that he will, in many instances, find it possible to continue to get on without them once the pressure for a high, and expanding, level of production of agricultural products abates. This does not necessarily mean that farm construction in 1946 will not be substantially greater than the foreseeable 100-million-dollar level of 1943. Probably it will run several times that figure (if only trebled it would equal the level of 1929 and 1941). But whether it will rise substantially above this pre-war peak, or even reach it, must depend in the final analysis upon the facility with which the individual farmer can get the building materials he requires, the price he must pay for them and for such labor as he may require in their erection, and, finally, upon the general trend and character of the then-existing market for his own products.

Cooperative Pays

The Mississippi Cooperative Association did a 9-million-dollar business during 1942, according to an announcement made at the recent annual meeting of this group, reports C. P. Persons, manager of the Department of Commerce field office in Atlanta, Ga. Sales of eggs alone amounted to $300,000; and a cooperative creamery, owned by 5,000 farmers, realized a net profit of $800,000.

Home-Ownership Rate Drops

More than half of the farm homes in the United States, but considerably less than half of the nonfarm homes, are owner-occupied, according to a report of the Bureau of the Census, giving United States summary statistics on housing, which is just off the presses of the Government Printing Office.

Of the total of 34,854,532 occupied dwelling units counted in the Sixteenth Decennial Census, 27,665,684 were classed as nonfarm and 7,188,848 as farm.

Of the nonfarm homes, 11,358,213, or 41.1 percent of the total, were owned by their occupants while 16,307,466, or 58.9 percent, were rented. In the farm group, 3,837,545 homes, or 53.4 percent of the dwelling units in that category, were owner-occupied and 3,351,303, or 46.6 percent, were tenant-occupied.

The proportion of homes in the United States occupied by their owners declined slowly from 1890 to 1920, increased in the decade from 1920 to 1930, and then fell sharply between 1930 and 1940. Despite the declining ratio of owner-occupied homes during the 50-year span, the actual number of home owners increased in each decade.

Possibilities of '46 Cosmetic Trade

By L. A. Barber

DRUGS AND PHARMACEUTICALS UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

AN "ORACLE" being consulted freely these days by businessmen concerned with post-war prospects is the exploratory treatise "Markets After the War." According to this hypothetical study, the year 1946, anticipated as the first normal year after the cessation of hostilities, will bring the toilet goods industry a 36-percent increase over 1940 in volume of sales, or $690,000,000 compared with $508,000,000.

Our purpose here is not to attempt to prove that this goal can be reached but to analyze the post-war possibilities of the toilet preparations industry and to encourage planning toward such an aim. Comments by members of the industry on the following exposition would be welcomed.

Estimate of Sales Volume

There are a number of reasons why the expected increase is not too fantastic. Demand for toilet articles and ability to purchase them should hold up well after the war. The ready release of raw materials, specifically alcohol and glycerin, and closures and containers will enable manufacturers to revert to normal production in short order. Present price levels will probably be maintained and any further tax imposts should not adversely affect the expected upward trend of sales.

Sales of toilet preparations from 1933 to 1941 follow:

	In millions of dollars
1933	326.0
1934	389.8
1935	365.6
1936	384.4
1937	405.6
1938	409.9
1939	483.7
1940	508.1
1941	570.0
1946	[1] 690.0

[1] Hypothetical volume.

An inspection of the above table reveals that 1941 sales show a 10-percent increase over 1940, and continuous gains are evident from 1935 to 1941. A 75-percent increase in 1941 over 1933 is to be noted. From these and other comparisons, it is conceivable for 1946 sales to achieve an increase of 36 percent over 1940.

Consumer expenditures in a normal year for goods and services to enhance beauty amount to $800 million. In 1939 there were 83,071 beauty parlors doing an annual business of around $232 million, and 539 plants were engaged in making cosmetics, perfumes, and toilet preparations.

Since early civilization, the greatest demand for cosmetics has always come from women, or certain groups of them. In recent decades, the number of women using toilet preparations has increased tremendously owing to many factors. The industry's intensive advertising programs, tending to make women glamour-conscious and encouraging their desire to look attractive at work and at home, have stimulated purchases of these preparations. The wholesale invasion of industry by women not only has made them more independent and self-assertive, it has put money in their pockets to spend as they choose for self-beautification.

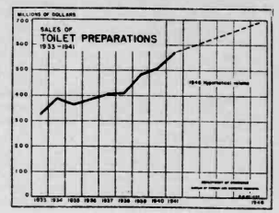
However, any increase in purchases of cosmetics during wartime should not be considered merely as a war-created demand occasioned by the growing direct purchasing power of women war workers but one that might in large part have been induced by the regular sustained promotional work of the industry. These sales gains in distribution will not be dissipated after the war, but will likely be augmented since a saturation point will not have been reached.

Perhaps not all women now employed will continue to work after the war, but many will. It is believed that those who are displaced by men mustered out of the armed services will, as housewives, not lose the cosmetic habit.

Market Possibilities

Each year younger girls take up cosmetics, thus acquiring early a habit which persists throughout life. In fact, surveys show that women 30 years of age or younger do most of the toiletry buying. Hence, the earlier girls start artfully improving upon nature, the greater the possibility for sales.

Reference to population statistics compiled by the Bureau of the Census reveals that the number of women in the United States is increasing steadily. From 1920 to 1930 the number jumped 17 percent, or from 51 million to 60 million. In the next decade there was a gain of 8 percent—by 1940 there were 65 million females. On the basis of a continuance of present population, birth, and mortality rates, one may expect an increase of about 5 percent, to some 68 million females, by 1946, pointing to continuous expansion of potential consumer demand.



The annual cosmetic market as of today would represent $1,200,000,000 if all women would spend as much for cosmetics as does the war worker. The average war worker spends about $2.37 a month on cosmetics, according to a statement by Irene Stanley in an address before the Toilet Goods Association meeting.

Government jobs and the attractive wages offered by war industries have lured many women from remote rural areas to urban centers. If they did not use cosmetics before, these newcomers soon learn to or at least they add many items to their make-up kit under the impetus of a new-found purchasing power. The women who return home when employment conditions change will, like Marco Polo, bring tales of wonderful products and new lines to their relatives and friends in country areas who might not have been reached by ordinary trade-promotion methods.

Continuing Demand

Many of the so-called war products, such as protective creams and lotions for industrial or home-gardening use, are in reality basic products which will continue to be in demand by the average woman.

This continuing expansion of the industry is not limited to regions but is spread quite uniformly over all sections of the United States. Of course, in the regular and newly created or expanded industrial centers, the increase will be correspondingly greater.

A growing interest in men's toilet lines is noted, but the possibilities in this direction are more limited. However, servicemen receive more gifts from their wives or sweethearts than ever before. They often get toilet and shaving sets complete with after-shaving lotion, cologne, and talcum. Such gifts may introduce men to certain products to which they may become permanently attached. It is probable that the daily shave habit induced by military discipline will create a greater demand for men's toiletries among certain groups who before the war did not shave more than two or three times a week.

Intelligent post-war planning aims to sustain industries which would naturally tend to slump and to help others reconvert to peacetime activity. Resumed production of durable goods and services, curtailed because of the war, will automatically create its own flourishing market. These enterprises will absorb much of the personnel released by strictly war industries, hence purchasing power should hold up.

The proposal to discharge armed forces gradually into civilian life will make adjustments easier; there will be no problem of how to place millions of potential workers at once.

Government projects in this country—

public works of all kinds, such as housing, road-building, bridge and dam construction—will very likely be authorized. While not contributing directly to employment and sales in the cosmetic industry, they will do so indirectly by providing general buying ability. Workers producing necessities will presumably have enough cash surplus to purchase so-called luxury items in the toilet preparations market.

Aside from domestic reconstruction, big in itself, there will be the gigantic task of giving relief and rehabilitation to liberated areas of Africa, Europe, and Asia. This project will necessitate the manufacture of great quantities of clothes, building materials, processed food, and countless other necessities for shipment to these areas. While the people being helped by us will probably be unable to buy our cosmetics, our domestic market will benefit indirectly—large numbers of people employed will be able to spend money on cosmetics.

Granted, therefore, that purchasing power will be maintained in 1945 at greater levels than ever, demand for cosmetics will surely keep pace. Experience has shown that as income increases or is maintained at a high constant level, more money is spent for food and necessities but a large share of the increase is expended also upon luxuries and seminecessities.

The release of cosmetic raw materials, easily effected by 1946, should enable the industry to meet any growing post-war demands. Larger allocations may be expected, at least when Germany is defeated, and 100 percent when Germany and Japan are both subdued. It may be assumed that basic materials, including alcohol and glycerin, will be 100 percent available at the Armistice.

No labor readjustment will be required in the cosmetic manufacturing field since women have always constituted the majority of the employees. With men returning to their places in other industries, mass opportunities for women in those industries at higher wages will no longer be available, and those now employed in the toilet preparations industry will remain in that field.

Cosmetic plants will continue as before because no reconversion will be necessary. Traditional distribution outlets—wholesale and retail (drug, specialty, department stores, and even the new grocery sales channels)—are unchanged by the war and will function as usual in the later period. Big firms will take the lead as usual and any smaller ones falling by the wayside will be replaced by new establishments, as has been the invariable occurrence over the life span of the cosmetic industry.

To repeat, at war's end there will be sufficient basic materials for all cosmetic needs, and no serious competition from other industries for such goods is envisaged.

Considerable demands will be made upon the United States for all types of basic materials required by the toilet preparations industries in the various American republics, but these requirements will not detract from our favorable supply situation as regards aromatic chemicals, essential oils, waxes, powders, containers, closures, and the like. The American republics are fast developing their own sources of cosmetic raw materials, domestically and from other regions, and should soon gain a certain independence. The distribution of our cosmetic basic materials will not have to be guarded as carefully as will the dissemination of natural resources heavily drained by war activity. Steel, for example, will probably be in great demand by all countries after the war for reconstruction purposes and may have to be allocated very carefully.

Our greater post-war requirements for essential oils, gums, and so on, originating in foreign countries, will be met upon resumption of uninterrupted ocean steamship service. The problem has not been one of dwindling original sources of supply but of interrupted trade lanes. Most needed ingredients originating in non-Axis countries have been curtailed chiefly because of lack of shipping space rather than on account of price or labor complications.

Any delay in the renewal of receipt of floral oils from France will not restrain United States manufacturing, since blends of florals with synthetics and even 100-percent synthetics offered during the war have not arrested the upward trend of purchases by consumers. Differences of odor quality have been more apparent to the perfume chemists than to consumers (who generally do not have as discriminating a sense of smell), and if variations have been noted, no complaints or diminution of buying have resulted. The free availability of floral oils, however, will enrich existing blends and approximate more faithful floral reproductions, thus aiding the restoration of pre-war de luxe perfume standards.

Changes in packaging no doubt have been noted by purchasers but such changes have had no negative effect on sales. The war has proved that sales can go on without the benefit of highly ornamental molds and specialized containers, which, in peacetime, constitute a "must." The product, not its container, has been the chief concern of the wartime consumer. Owing to the ephemeral nature of cosmetic units—they are used up so quickly—superb containers are not of paramount importance particularly where the entire industry is similarly and equally affected. By 1946 de luxe packaging materials will again be available.

It is believed that the United States sales picture will not be materially affected by foreign competition. Importations of finished cosmetic products will probably be confined chiefly to a few eau de cologne and de luxe perfume specialties, a large number of which are actually being manufactured here by branches of foreign houses. Superior quality and generally low cost of domestic products give us an economic advantage.

Unlike concerns filling large orders for war use, the toilet preparations industry does not have to face the problem of disposing of large accumulations of Government-held stocks after hostilities cease, and avoiding upheavals in the domestic and foreign markets. On the contrary, the industry has been limited to greatly reduced percentages of several important ingredients (50 percent of alcohol and 40 of glycerin), despite which sales have gained. When ample supplies again become available, the hungry market is bound to receive a boost.

In 1946 prices will probably hover around present levels. Some observers believe that price control of basic materials and finished retail packages, to prevent inflation, will continue in some form immediately after the war. Even if the cost-of-living index should rise somewhat, cosmetic sales in general should not be adversely affected.

Liberation, under open competitive conditions, of materials no longer needed for war projects should help keep cosmetic prices down. Toilet preparation units are low enough in price not to be affected by increases in purchases of other consumer goods. Also, because of the comparatively low unit value, any severity in tax imposts will not seriously affect individual purchases of these items, and the total annual purchases spread more or less evenly over the year are not onerous.

Returning to the opening hypothesis, a sales volume in 1946 representing an increase of 36 percent over 1940 should be attainable.

Five States Grow Bulk of Vegetables

Although not confined to any special section of the country, most of the commercial vegetable production is limited to rather restricted areas: Regions producing winter, or early, season vegetables for shipping; those producing vegetables for canning or quick freezing; and others, particularly near large cities, producing vegetables for the local markets.

According to the last Census of Agriculture, California, the premier vegetable State, with 406,419 acres of vegetables valued at $38,960,365, ranked first in 1939 in both acreage and value. Texas, with 288,993 acres producing vegetables valued at $10,746,070, held second place in acreage, but fifth in value. Florida was second in value but fourth in acreage; this State reported 185,194 acres valued at $20,107,235.

Acid Increases Resin

The United States Forest Service has found a new use for sulfuric acid.

When pine trees are tapped for resin, if sulfuric acid is applied to the cut surfaces, gum will flow from the wound for two weeks instead of one. Quantities of resin and turpentine can be increased by this method without harm to the trees.

Outlook for Drugs in Post-War Period

By T. W. Delahanty

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The Bureau's recently released publication, "Markets After the War," is an engrossing document. Many who read it will probably react unfavorably, at the outset, for they may be prone to forget the fact that it is based on a series of hypotheses. Nevertheless, if what is sought is accepted as desirable and practicable, and if united action is directed to this end, plans based thereon should result in attainment. In brief, it is merely an attempt "to set the sights of industry on a common goal of post-war opportunity."

Certainly, the basic thought is sound. In fact reasonably full employment offers the only way in which a free-enterprise country may continue to progress economically as well as socially. However, it is not until we stop to examine table III, the hypothetical projection of production by commodity groups, that one may encounter wide differences of opinion. Some industrialists, while approving that hypothesis, have questioned the possibility of attainment; others have been equally positive of our conservativism. And such differences of opinion have occurred not only between industries but also within the same industry. Discussion with certain manufacturers and distributors in the drug field, for example, showed conclusively that they differ among themselves.

Outlook for Industry

This is the outlook for the drug industry: In the arbitrary year 1946, the drug share of the gross national product is placed at 1 billion 156 million dollars. This figure represents the value of manufactures along with wholesale and retail markups. In summation, it would represent the consumers' outlay, including institutional purchases of drugs. In 1940 the comparable figure was 804 million dollars, therefore the 1946 expenditure would represent a 44-percent increase, or 352 million dollars of additional drug sales.

Coldly appraising the situation, few if any drug manufacturers would decide to operate their plants to capacity, initiate additional shifts, or expand facilities on the altruistic basis of employing more people—even on the theory that all others are going to do so and that, consequently, sales of medicines should boom. They know that, even in a depression, humanitarian or public health measures may bring about a boom in the drug industry in contrast with slumps in other industries.

On the other hand, it is true that in prosperous times people are prone to take better care of their health and to seek competent medical attention more frequently. For one thing, they can afford to. There likewise arises the progressive concept of a full medicine chest embrasive of standard household remedies, as well as the fact that prosperous times are a boon to the faddist. While the so-called "ethical manufacturer" may not see eye-to-eye with his associate who promotes self-medication, the fact remains that the proprietary branch accounts for as much or more than does the ethical manufacturer in the composite drug industry output.

It would seem obvious, therefore, that direction of effort on the part of an industry which caters to a problem as fundamental as health should not be attempted by means of a mathematical formula or on a drive-selling basis. True, over the long run it may work out that way, but the approach and justification for expansion of effort must be from a health service point of view rather than from that of a general economic trend. If, therefore, we accept the further assumption that drug preparations and household medical supplies are not articles which lend themselves to promotion except where a definite need is involved, we should be able to determine post-war magnitude if we can project need trends, and developments in response to them.

Health Facilities Increased

In the years between the world wars there developed a phenomenal growth in hospital, sanatarium, clinical, and diagnostic center capacity and in public acceptance of these health services. Educational institutions, constantly enlarging, had more applicants for medicine and pharmacy than they could accommodate. Communities were becoming universally conscious of public health considerations. Rural areas were imploring the health professions to cater more to their requirements. Urban groups, particularly the industrialized sections, were sponsoring socialized medicine.

The proprietary medicine manufacturers, offering their human and animal remedies, were, next to the foodstuffs industries, the largest aggregation of advertisers in the world, and the growing public response to their appeals is a matter of statistical record. These general citations portray a definite trend toward greater health consciousness, which should be increasingly manifest in an expanding health products industry.

There are many other factors, however, which bear upon any attempt to forecast. In a prosperous country one would expect to find less malnutrition, better housing and employment conditions, and greater opportunity for healthful recreation and exercise, all of which should lessen the demand for medicaments. But offsetting this lessening in demand is the trend toward food-enrichment standards, hygienic progress, and newer outlets through bodily readjustment and preservation, which point to a manifold expansion. However, it should be stressed that so far we are looking at an economic, free-enterprise health demand, and not one predicated on a socialized, humanitarian, or governmental responsibility, and at a domestic, in contrast to an international, picture.

No Need of Abnormal Expansion

The drug industry is fortunate in many respects. To meet the added burden of military, as well as Lend-Lease and other foreign requirements, in addition to usual civilian demand, it has not had to convert or abnormally expand production facilities. In the main, growing responsibility has been met, with certain exceptions, by operating on a two- and three-shift basis and by some subcontracting. Likewise, considering 1946 as our hypothetical post-war year, the drug industry could be conceived of as still going full blast on relief demands of reoccupied areas.

Chemical and materials suppliers, therefore, should be heartened by the thought that post-war demand for products of the drug industry will mean business for its suppliers also and that, as a consumer, the drug industry's wants will continue from war end until somewhat later. Long before that time, drug industry post-war plans should be a reality and well advanced toward the attainment of the hypothetical production and merchandizing volume position of a 44-percent increase over 1940.

Mass Education

These new plans should possibly place greater emphasis on educating the masses as to the desirability of more thorough physical and health evaluation and periodic checkups. The average man feels healthy, thinks he is healthy, and may be so, but he cannot be sure without a series of thorough examinations. In general, he knows that surprising advances have been made in curative medicine, and he is somewhat familiar with the field of preventive medicine, but he is woefully ignorant of health stahdards and how they may be attained.

There are thousands of humans, therefore, whose health has been unsatisfactory from birth or from some period thereafter, who are unaware of the fact and may remain so. Of course, as standards rise, more people become conscious of improvement possibilities, and, as a consequence, growth should occur in spe-

cialised medicinal preparations.

Vitamin therapy—a phenomenal development of the past decade—which alone may grow to a sales volume of 500 million dollars by 1946, is merely an indication of what lies ahead for those who can get man to similarly realize the essentiality of such preparations as endocrines, tonics, digestants, and eliminants.

The average drug producer has dozens of products which are regarded by him as strictly ethical, but which might well be promoted for self-administration. Though this branch of the industry may be prone to disregard such opportunity, there is much merit in the efforts of those in the proprietary branch who conduct educational promotion designed to make us aware of certain fundamental functional deficiencies, as well as medical requisites. Often there may be little, if any, difference in ethical and proprietary products, therefore it is surprising that those who spend the money for medical and drug product research and development are content to see the larger profits garnered ultimately by those who may be merely specialists in promotional merchandizing.

While the foregoing expansion possibilities may be contingent upon a change in the point of view within the industry, the public itself may likewise bring about expansion through the growing trend toward socialized medicine and public health activities. Day by day, the thought grows that maintenance of health is an economic responsibility of the employer and the state, as well as of the individual. As socialized medicine progresses, health facilities—private as well as public—will be better supported. The time may come when periodic health examinations and treatments and adherence to health-maintenance programs are essential to employment or public benefits. These programs are in effect today in certain phases of our economy and they are spreading as a result of insurance, social security, and health regulations. In fact, it is conceivable that should this type of development continue to progress, its limiting growth factor could be the availability of physicians, pharmacists, and medicinal aids.

Part for Veterinary Medicine

Another branch of the industry, not ordinarily visualized as such, is veterinary medicine. The requisite drug products are, to a large degree, made by the drug industry. Few people realize the degree to which this branch has been growing. The urban dweller may think only of medicinals for pets—in itself a big field—but the field of economic significance is with respect to food animals. Therein, it has been conclusively proved that expenditures for veterinary practice designed to develop standards and maintain health are profitable.

Finally, while exports are not considered in the hypothetical projection in the publication, "Markets After the War," one could hardly consider drug-industry opportunity without giving some consideration to the export phase. The drug industry has long been active along this line; in fact it is one of the oldest industries in foreign trade. True, export demand has represented a relatively small proportion of total business, but it has been acquired on a merit basis and in spite of a European therapeutic system firmly entrenched for centuries.

In addition, foreign branch plant manufacturing by United States firms has represented an appreciable contribution to international medical practice. The non-Axis world now looks to the United States for practically all its health aids and, now that it has been introduced to such products, previously used orthodox medicaments abroad may have to reestablish themselves on a merit basis.

Of course, with most foreign channels closed as they are to normal trade, even though we are serving the demand indirectly, establishing contact between seller and prospect for post-war maintenance of these new markets is not going to be easy. Furthermore, nationalism, tariffs, and technical impediments will no doubt affect the future demand upon the United States. Nevertheless, we visualize that progress not only can be attained but that there will be a decided impetus toward capitalizing on our current fortunate position, even though we may have to decentralize our foreign output in some cases.

In the light of the foregoing, it is likely that every manufacturer and distributor in the drug field will feel that, even in the absence of a goal of accomplishment in common with that of other industries, opportunity for expansion is relatively unlimited.

Census Reports on Food

Because of the great interest in problems relating to food and food production, the Bureau of the Census of the Department of Commerce has issued a series of special reports. These reports show the rank of the leading counties in the United States in agriculture and in agricultural production of specified items as reported in the latest Census of Agriculture.

The separate reports—Series Agr. R–1 through R–50—show the geographic distribution and concentration of specified items, shifts in production from one area to another, the development of new areas, and the like, with much greater clarity than do the detailed Census of Agriculture reports.

This series, together with the summary (Series Agr. R–51), may be obtained gratis from the Bureau of the Census, Washington 25, D. C.

Consumer-Retailer Cooperation Fostered

To release urgently needed manpower and materials, it is essential that there be a complete understanding and unity of action on the part of both retailers and consumers. Working together throughout the country, each group can make a tremendous contribution to winning the war.

Imbued with this philosophy, the National Consumer-Retailer Council, Inc., 8 West 40th St., New York, N. Y., has consistently worked toward fostering closer cooperation between the buyers and the sellers of the Nation. As reported in the December 31, 1942, issue of DOMESTIC COMMERCE, the Council has sought to guide each class in a series of leaflets, one addressed to consumers, the other to retailers. To date the following leaflets, entitled "Action Today Spells Victory Tomorrow," have been issued:

1. Hoarding. Urges concerted action against hoarding.

2. Deliveries. Suggests steps each can take to cut down on deliveries.

3. Successor Materials. Tells what each can do to help build a proper attitude toward successor materials.

4. Returned Goods. Outlines specific steps each can take to reduce return of merchandise to the store. Each leaflet is accompanied by a Returned Goods Chart which lists eight principal causes why goods are returned and tells what customers can do, what retailers can do, to help eliminate these causes.

5. Wartime Canned Food Changes. Provides information regarding changes which have had to be made in the packing of canned foods as the result of war conditions.

6. Mail and Telephone Order Buying. Lists specific ways in which consumers can check their buying practices, retailers their selling procedures, in order to make ordering by mail or telephone satisfactory to both the store and its customers and to help assure that this type of buying does not cause an increase of returns.

7. Simplified Selling and Self-Service and Self-Selection. These two most recently distributed leaflets tackle the basic problem of insufficient manpower. The retailer is given practical suggestions on how to arrange and display merchandise on a simplified, self-service basis. Informative signs and labels are discussed in detail, and the bare essentials in personnel are cited.

In a leaflet entitled "Help Serve Yourself: Save Time," the consumer is reminded of the need and what he or she can do to aid the retailer.

Hypothesis of Post-War Shoe Markets

By *J. G. Schnitzer*
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Although the introductory statement clearly explains the intent of this series of articles, the reader is urged to keep in mind that the definition of hypothesis, as noted in a late edition dictionary is "A state of things assumed for reasoning." It is in this sense that we use the word here, and emphasize that nothing herein is intended as either a forecast or prophecy.

Planning Not Premature

We do not concur with those groups which believe that industry considers post-war planning premature and in a wishful thinking stage. This has been refuted by preliminary data from a survey by the Research Institute of America, now in process of final tabulation. Growing interest in the possibilities of the post-war shoe trade is evidenced by an increasing number of inquiries during recent months. There is a definite trend toward specific planning for the future to be better prepared for the return to normalcy after the war than was evidenced in 1917–18. This desire to think and plan along such lines, despite the magnitude of present-day problems such as rationing production, and style restrictions, is sound and should be encouraged.

Examination of Table III in "Markets After the War" shows that total footwear sales for 1946 are projected to a value 65% above 1940, at 1942 price levels. However, by using 1940 price and production data the increase would amount to only 40%. Considering post-war conditions as now visualized, this possible gain in shoe sales may not be excessive — or is it? The possibility mentioned is merely one opinion. This expectation places no limitations on individual opinion and reasoning so that allowances can be made by any member of the shoe trade thinking along these lines for any distortions or differences of thought.

Rationing Reduced Normal Reserves

Because rationing has restricted supplies of shoes in consumers hands, normal reserves will have been greatly reduced during the war period. Considerable replacement will be necessary in virtually all varieties of footwear, and, in the aggregate, heavy purchases of galoshes, rubbers, boots, shoes, and slippers should follow. Consumers say feel that such buying will be necessary to bring their footwear wardrobe back to normal levels. Already, there are indications that complaints will be made as soon as the full effect of rationing is felt, which is never immediate.

Consumers have noticed some deterioration in the quality of most types of rubber footwear, but have refrained from complaining because they realized this resulted from the generally unfavorable rubber situation. The reduction in quality has not only taken place in the utility types, such as those with rubber soles and canvas uppers known as "tennis" shoes, but also in the protective kinds like galoshes and rubbers. In addition to poorer quality, supplies are limited because of reduced production. Return to better grades and more abundant supplies in the post-war period could readily result in a definite upswing in sales volume.

For many months now, sales of boots and heavy rubber work shoes have been subject to strict rationing, and distribution has been confined to occupational users. Those who desire such footwear for other than occupational use find it impossible to buy them. These desires will be nurtured during the war period and will begin to be satisfied in, shall we say, 1946.

Taking the rubber footwear group as a sample, what would be a fair basis for determining the extent of increased post-war sales? Probably an estimate of a few consumers would be a good starting line. Estimates based on casual sampling among several classes of consumers record a wide variance of opinion on future purchases. Those consulted in the higher income groups imply an increase of 100% in their post-war purchases of rubber footwear, while in the lower income groups gains of only 40% are indicated. Here, also, there is some difference of opinion as to the extent of the increased sales but an agreement in the belief that gains will be made.

Buying Habits May Be Changed

Different factors must be considered when discussing the possibilities in leather footwear, but increased retail sales appear to be common to all analyses. Here, also, there may be a variance of opinion as to how the increase will be distributed, but there is apparent trade agreement that an increase is certain.

One illustration is the upgrading of shoe purchases by consumers since rationing started on February 9. Manufacturers of low-priced shoes have complained that the rationing program threatens to put them out of business because the public has become quality conscious. They claim that there has been a decline of 70% in the sales of shoes retailing for less than $3 a pair during February and March, and they fear that this trend will continue. Industry should begin to think of the percentage of upgrading by consumers, which may continue after cessation of hostilities.

Many consumers will probably continue to buy better grades of footwear after the war, but to what extent such purchases will be maintained is anybody's guess. If a sufficiently large proportion of the public does retain this buying habit, it will be reflected by some increase in the total value of retail shoe sales. What the rate of this increase will be is the unknown "X." What does your experience as a shoeman lead you to fill in for that unknown?

A period of recreation and relaxation will certainly follow the period of direct or indirect war activity, and this, too, will be reflected in higher shoe sales of sport types. There was a very definite increase in participation in active sports after 1918. Such activities as bowling, skiing, hiking, and horseback riding found hundreds of new adherents. They became good customers for specialized types of footwear, which were actually extra-pair sales. There is a very good possibility that a similar trend will follow the present war, but we will not even attempt to estimate the increased volume. You dealers catering to this type of trade may have some yardstick to measure the gains in this field.

Footwear for Specific Use

We visualize possibilities that footwear purchases in the post-war period will be more for specific use than ever before. Laborers may be more inclined to purchase actual work shoes and not rely on worn out dress types for this purpose. Persons taking up special sports might obtain shoes best suited for such use, while spectators will lean more and more toward comfortable "loafer" or modified slipper varieties. Dress and street shoes, then, will be used more for their own purposes and less as all-around varieties, as they were in the past. Will these developments take place in the post-war years, and if so, will the change be gradual or rapid?

When style and other restrictions are removed after the war, there will be a rush by industry to get back some of this business. This should result in greater variety than has heretofore been offered to the consuming public. New materials, especially plastics, could be used to attract the consumer. Samples of plastic shoes have already been displayed, and their appearance is such as to portend a prominent place in post-war retail trade.

All the facts thus far presented indicate that the shoe wardrobe of the American family will expand noticeably when the fighting ceases. Initial additions suggested may be larger than indicated in Table III, while replacements, although at lower levels, might be constant and thus bring about the expansion indicated. This possibility is of sufficient importance to warrant much thought by the shoe trade.

Promotional Activity Will Be Needed

We do not intend to imply that the increased demand for variety should come entirely as a voluntary action on the part of the consuming public. Shoe producers and retailers will have to do much promotional work to make this possibility a reality. Do not lose sight of the fact that there will be considerable competition from suppliers of all commodities for the consumer's dollars. Hence, it will not be wise to sit back and wait for results. No successful trade results from inactivity.

Limited space does not permit a complete discussion of all the possible factors requiring consideration. One very important question which might have a definite influence on

the post-war business is that of foreign trade. In the immediate pre-war years, there was a slow but constant expansion in shoe exports from the United States. However, imports were advancing, causing concern to some sections of the domestic industry.

There is also the problem of international relief which will enter into the question of foreign trade. What volume of shoes will be included in this cannot even be estimated at present. Nor can one readily determine the effect of this flow on either supplies or domestic sales. The importance of this to the whole problem of post-war developments cannot, however, be overlooked.

Now, taking it for granted that the spending power will be there, what are you, as a shoeman, planning to do to get your fair share of it?

We have projected our thought into the future to start some discussion on post-war trade possibilities — but, remember, these are just possibilities and not forecasts. What we have really been doing is thinking out loud, hoping that this would lead to some thought, silent or otherwise, on your part regarding possible post-war trends. Have you any different ideas on the subject? If so, let's talk them over. Don't put off too long this type of thinking. If you haven't already started, begin NOW.

LEND-LEASE WORKS BOTH WAYS
LESS BEEF WAS LEND-LEASED IN 1942 THAN WAS RECEIVED UNDER REVERSE LEND-LEASE
WE SENT
TO OUR ALLIES
WE RECEIVED
FROM AUSTRALIA AND NEW ZEALAND FOR OUR TROOPS
EACH SYMBOL REPRESENTS 5,000,000 POUNDS OF BEEF
V-424

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Post-War Markets for Food Products

By *F. H. Rawls* and *J. H. Stehman*
Foodstuffs Unit, Bureau of Foreign and Domestic Commerce

Projected expenditures in 1946 for all foods (including beer, wine, distilled liquors, and soft drinks) under the assumptions stated in "Markets After the War" amount to nearly 34 billion dollars. Such a consumer outlay for food products would be 62% greater than the 21 billion dollars spent in 1940. Since one of the assumptions is that prices will be at the 1942 level, this projected increase must be brought about by absolute increases in consumption, or shifts from lower to higher priced foods.

The possibility of a 62% increase in food expenditures in 1946 offers a fertile field for a wide range of speculative thinking. Such an increase would mean that consumers must eat 62% more food, or eat food that would be 62% greater in value. Actually, the quantity, quality, and variety factors probably would all contribute to the increase; a greater quantity of food would be consumed, and the quality, and variety would be at a higher level.

Granting the assumptions made, the hypothecated increase in food expenditures during the post-war period does not seem impossible. If for no other reason, food expenditures will increase because the population will be greater and there will be more people to consume food.

Other Factors Must Be Considered

But this is only one consideration. It has been estimated that in 1929 about 70% of the families in the Nation had incomes lower than $2,500 per year, and that if the incomes of all of these families had at that time been raised up to the $2,500 level, a 40% increase in the consumption of food products could have been expected — from 10 to 15 billion dollars.

Another study, based on the 1935-36 expenditure pattern, indicated that an increase in national income from 50 to 80 billion dollars would have raised aggregate food expenditures from about 15 billion to nearly 20 billion dollars.

Tremendous possibilities exist with respect to increased food expenditures arising out of the purchase of higher quality products, specialty items, and food products now available for relatively limited distribution.

As an example, a study of weekly sales of oranges by retail outlets in high and low income areas of New York City may be cited. This study covered the months of October and November 1939 and March of 1940. In the first month studied, the dollar value of sales of oranges in high income areas was more than twice that of sales in low income areas. In the second and third months studied, consumers in high income areas made purchases of oranges valued at almost three times as much as did people living in low income areas. The data indicate, further, that the increased value of sales to high income groups arose only partially out of the greater volume involved — the increased value per pound of oranges contributed materially to the greater value of sales in the high income areas.

Other possibilities for increasing the value of products sold, independent of any increase in volume, might be achieved by manufacturing ice cream from milk with higher butter-fat content, or by fortifying food products with vitamins.

Production Volume Involved

One of the problems which might prevent an early achievement of the hypothecated increase in food expenditures relates to the question of whether the necessary volume of goods can be made available for United States civilians in 1946.

Granting that producing facilities, including labor, are maintained at full capacity from the end of the war through the immediate post-war period, the production and supplies of commodities may not be adequate as early as 1946 to make possible expenditures for food at the level indicated by projecting 1929-1941 relationships. As a matter of fact, it is not improbable that rationing of some food items will necessarily continue into the post-war period.

The extent to which production can support expenditures at the hypothetical level is certain to vary as between different food products. The first reason for these variations relates to differences in the percentages of total production of various commodities which will be diverted from normal trade channels during the immediate post-war period. It is entirely possible that foodstuffs will assume an even greater importance in the immediate post-war period than during the war. The volume of food diverted from regular trade may be greater both in absolute amounts and relative to other commodity groups. That is to say, exports of canned milk may increase both absolutely and relative to the exports of certain types of durable goods.

Food Conference to Discuss Problems

The importance of food products in rehabilitation plans in high-lighted by the coming food conference of representatives of the United Nations. The immediate need in liberated areas will be food. This need will tend to reduce that part of United States food production which would be available for consumption in this country. A factor tending to reduce the diversion of foodstuffs from civilian channels will be the demobilization of United States and other United Nations troops which will lessen military requirements. However, this operation will very likely proceed slowly for quite some time after the war is over.

Aside from the question of how large a percentage of food production will be diverted from normal trade, another, and perhaps more important, problem has to do with the length of time required to increase the production of different types of commodities, to develop the production of new commodities, or to improve the quality of old ones. The significance of this consideration is apparent: the quicker that production can be increased, the greater is the possibility that production will be sufficiently great to supply an increased demand and support expenditures at a high level.

Wide variations exist in the time required to increase the production of different commodities. The production of fruit, for example, cannot be increased substantially from one year to the next. A period of years is required to plant the trees and bring them into production. The utilization of a given production of fruit may be shifted, as, for example, from dried fruit to frozen fruit, but the over-all production cannot be increased except, of course, that the same trees may yield more fruit one year than the preceding year, due to the application of more fertilizers, greater care and cultivation, and more favorable weather conditions. A similar case could be made for beef and dairy products.

On the other hand, the production of vegetables and cereal crops may be increased quite readily from one year to the next by planting greater acreages. However, even in cases where production can be increased fairly rapidly, a careful distinction must be made between increasing over-all food production, and increasing the production of one commodity at the expense of decreasing the production of another. At any given time, limitations exist as to the over-all increase possible. These limitations include the immediate availability of land suitable for cultivation, fertilizers, machinery, manpower, and similar productive resources.

An increased utilization of any one or any group of these productive factors for one purpose necessarily decreases the availability of those factors for the production of other commodities. Of course, none of these considerations precludes the possibility of commodities affected by them from contributing their share of a high consumption in subsequent years.

Increases in Food Expenditures

The relative increases in expenditures for food compared with those for other types of commodities, and the relative increases in the consumption of particular food items would depend in part on the distribution of the increased income among various income groups, among consumers in various regions, among rural and urban dwellers, and among different sized families.

Space does not permit the exploration of the effects of all of these factors, but a few comments are in order. People in lower income groups customarily spend a much larger percentage of their income on food than do those with higher incomes. Therefore, to the extent that the increased income was enjoyed principally by lower income groups, the relative increases in expenditures for food probably would be greater than those for other types of goods. Moreover, the types of food consumed vary in accordance with income levels. Lower income groups not only spend a larger proportion of their income for food, but a greater percentage of their food expenditures are for essentials, rather than for specialty or luxury items.

The foregoing relates to increases in expenditures for food relative to those for other types of goods, and increases in expenditures for particular kinds of food relative to increases for other foods. On an absolute basis, total expenditures for all food and most types of food contributing to this total should increase markedly.

Another complicating factor in appraising post-war expenditures for food relates to disruptions and rearrangements of the export trade of foodstuffs which have occurred as a result of the war. Pre-war trade relations may not be re-established even after the war is ended and shipping problems no longer exist. Some markets for food products may become of minor importance after the war, while other countries may rely on the United States for certain foodstuffs for many years to come.

As an example of markets for particular kinds of foods that may disappear permanently, a certain development in the Western Hemisphere is cited. A concerted effort has been made by many of the other American Republics to increase their production of foodstuffs, and, thus, decrease their dependence on outside supplies needed to maintain the operation of their economies at a satisfactory level. To the extent that the efforts on the part of these countries are successful, it is possible that these relatively new foreign food industries, established because of the exigencies of war, may be continued and further developed after the war. This might result not only in the loss of certain markets for foodstuffs but in new competition in others.

How the volume and types of food consumed in the post-war United States would be affected by rearrangements of trade relations cannot be foreseen clearly at this time. Equally uncertain are the deaths of old markets and the births of new ones.

Will Price Control Be Needed

Up to this point no mention has been made of prices and price relationships, but these will bear importantly on post-war expenditures. To the extent that all prices are controlled effectively, the impact of new price relationships on food expenditures will be minimized. If prices are allowed to follow a free course, new possibilities for speculation are opened by probable changes in prices and price relationships which would result from a higher income level.

A common observation is that the demand for foodstuffs is, by and large, inelastic. In periods of changing income and prices, the volume of over-all food purchases (being a basic consumer requirement) tends to range within narrower limits than the purchases of other types of goods. Likewise, the supply of foodstuffs has many elements of inelasticity, and these contribute to the wide variations in farm prices. While these observations apply to foods in general, their application does not extend to a wide variety of specific commodities, particularly more highly processed foods.

The demand for delicacies is more responsive to changes in prices and income than is the demand for bread. Furthermore, the elements of inelasticity in the supply of foodstuffs, cited above, are not present in the case of all food items. Productions of dried fruits, frozen fruits, and canned fruits are elastic and quite sensitive to changes in prices and price relationships.

Finally, variations in expenditures for many types of foods may be expected to follow as a result of changes in the relationship between the prices of the various foods. This applies particularly in cases where one food is directly substitutive for another. Frozen peas, and canned peas afford an illustration of this type of relationship.

This brief appraisal of post-war food market possibilities is offered in the spirit of stimulating thought on the subject and raising still further questions. Only a few major problems have been mentioned, since the scope of possible speculation on the subject is practically unlimited.

For example, who can say at the present time what will happen to the dehydrated food industry? Will it encroach on the canned foods industries? How about quick-frozen foods? Will an effort be made to shift from the production of cereals to the production of green vegetables and dairy products? What will happen to food products developed for war use? Will consumption habits of returning servicemen have been permanently changed? Will they eat more or less than they did before going into service? Will the so-called "hidden hunger" problem — nutritionally deficient diets — be eliminated by fortifying all food products with vitamins and artificially produced nutritional elements? Will the United States become an important market for highly perishable tropical fruits? Will new packaging methods, and new types of transportation revolutionize the distribution of any food products? For what kind of products will air transportation be feasible? Will dried milk replace canned milk in home cooking?

These and many other questions warrant consideration. With the probable increase in food expenditures to look forward to, every producer and distributor of foodstuffs should be encouraged to study painstakingly future possibilities and probabilities that will largely govern his post-war economic destiny.

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ARMY RATIONS — 1775 v. 1943

The American soldier in the Revolutionary War received the following food allowance:
1 pound of beef, or 3/4 pound of pork, or 1 pound salt fish per day.
1 pound bread or flour per day.
3 pints peas or beans per week or vegetables equivalent.
1 pint milk per day.
1/2 pint rice or 1 pint Indian meal per week.
1 quart spruce beer or cider per day, or 9 gallons of molasses per 100 men per week.
3 pounds candles per 100 men per week, for guards.
24 pounds of soft soap or 8 pounds of hard soap per 100 men per week.

In the war of 1812 and in World War I, the beef allowance was raised 1/4 pound daily. Today's American soldier again receives 1 pound of meat, plus the following items in his ration:
Eggs - 1
Butter and other fats - 2½ oz.
Grain products and cereals - 12 oz.
Milk - 1 pint
Irish potatoes - 12 oz.
Tomatoes and citrus fruits - 4 oz.
Leafy, green, and other vegetables - 7 oz.
Other fruits and vegetables - 12 oz.
Sugar - slightly less than 3 oz.
Breads, desserts, and salads make up the remainder of a total allowance of 5½ pounds of food per man per day.

"Markets After the War"—Farm Equipment

By *Paul Andresen*
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"Markets After the War" presents a picture of probable post-war sales by the various branches of the American economy under conditions of full employment. In general, and even in many details, this picture is undoubtedly quite accurate. But a shift of emphasis to a particular industry, such as farm equipment, necessitates close examination of the data employed, the reliability of the projection of past sales, and the special factors which might affect future sales.

Table III of "Markets After the War," indicates that full employment in the United States probably would result in sales of tractors and of other farm equipment amounting to 230% and 220% of 1940 figures, respectively. The question is, how reliable is this projection?

The Data

Persons familiar with the annual survey "Manufacture and Sale of Farm Equipment" may not recognize immediately the sales figures given in Table II of "Markets After the War." For tractors, these figures are based on manufacturers' domestic sales as reported to the Bureau of the Census, plus estimated transportation costs, retail mark-ups, inventory changes, and so on. For other farm equipment, a selection was first made among the items included in the census report, and estimated amounts were then added, as in the case of tractors, to reach a figure representing annual domestic sales at the retail level. This general procedure was necessary in determining the gross national product. However, since farm equipment sales at factory prices, as given in the census, are widely known and understood, it will be preferable for present purposes to use the Census Bureau data.

Sales of Farm Equipment

The following table gives domestic sales of tractors and of farm equipment other than tractors, compiled from "Manufacture and Sale of Farm Equipment." It was necessary to supply estimated figures for the years 1932-34, when no census was taken. Also included is the gross national product for each year, as given in "Markets After the War."

It may seem odd that farm equipment sales are charted in terms of the gross national product, since it is customary, and indeed entirely logical, to regard farm income as the primary determinant of the level of farm machinery sales. Readers may recall a study of the relation between farm equipment sales and farm income published in the fall of 1941 by the Bureau of Foreign and Domestic Commerce and reprinted in a number of trade journals.

In the present instance, however, we are concerned with the whole economy working at a full employment level, and with the place of the farm equipment industry in this picture. It is therefore appropriate to start with the gross national product which covers the whole economy.

We could proceed from this point to determine from past experience what part of the gross national product goes to farmers in the form of cash income, and what part of cash farm income is spent, in turn, on farm machinery. But such an approach introduces unnecessary complications and refinements. It is well known that farm income follows industrial wages very closely, and in this way is intimately related to the gross national product. For this reason it will be simpler to eliminate the intermediate step, and determine directly the relationship between farm machinery sales and the gross national product.

Sales Related to Gross National Product

Following the general method employed in preparing "Markets After the War," the above chart shows sales of farm equipment other than tractors plotted against the gross national product, year by year. It is apparent that all of the points lie more or less along a straight line, which has been drawn in so as to be as close as possible to the individual points. For the period 1929 through 1941, the difference between actual sales and theoretical sales, as indicated by the line, averages about 9% of actual sales, which is fairly good.

If we assume that the general relationship represented by this line will hold after the war, and that it will hold at a full employment level, then sales of farm equipment other than tractors would be in the neighborhood of 636 million dollars, or 224% of the 1940 figure. This assumption was made in developing the comprehensive Table III, and the same projection, based on unadjusted census figures, as in the chart, indicates almost the same relative change — 224% instead of the 226% of Table III.

If the same process is carried out for tractors, using the factory values of the Census Bureau, a line can be drawn in so that the dots representing actual sales and gross national product cluster about the line just as closely as for other farm equipment. Projection of this line to the point corresponding to a gross national product of 165 billion dollars gives a theoretical figure for tractor sales amounting to 464 million dollars, or 229% of 1940 sales.

Of this basis, total domestic sales of farm equipment including tractors would amount to 1,102 million dollars at factory prices.

There is, of course, nothing inevitable in the straight line projection. It may be that with full national employment and record farm income, farmers would shift their buying habits so that farm equipment would no longer hold its own, and instead of projecting a line, we should project a curve, falling off somewhat at very high levels. The fact remains that the straight line follows actual sales closely over a period ranging from depression to prosperity. It offers a concrete starting point in any attempt to analyse the place of the farm equipment industry in the post-war American economy.

Special Factors to Be Considered

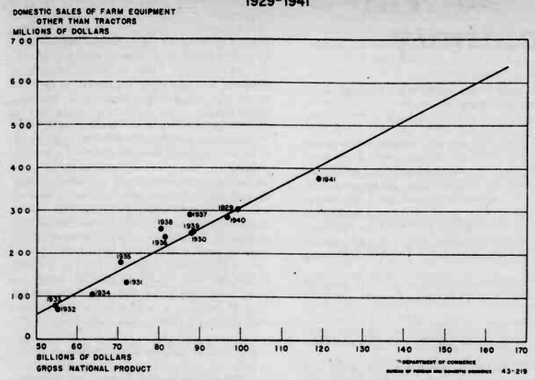
Assuming, then, that there will be full employment after the war, past experience indicates that domestic farm equipment sales would reach a yearly volume in the neighborhood of a billion dollars, at factory prices. We must now ask whether this tremendous output is feasible, and whether it is likely, in view of the known limitations of the market and other factors.

Including exports, the industry would require a total capacity well in excess of a billion dollars. Production in 1941 topped all previous years by a substantial margin, but it amounted to only 746 million dollars. To reach the projected post-war level would require an expansion of perhaps 75%. However, this is quite possible once the industry is able to devote all its energies to farm equipment. Machine tools, raw materials, skilled labor, and facilities will be available; the chief problems are those of reorganization rather than of physical limitations.

Domestic Farm Machinery and Equipment Sales and the Gross National Product

Year	Domestic sales of tractors and parts	Domestic sales of farm equipment other than tractors	Gross national product
	(Million dollars)	(Million dollars)	(Billion dollars)
1929	155	303	99.4
1930	133	248	88.2
1931	60	152	72.1
1932	25	70	55.4
1933	24	77	54.8
1934	66	104	63.8
1935	123	179	70.8
1936	172	227	81.7
1937	214	293	87.7
1938	151	258	80.6
1939	188	252	88.6
1940	203	285	97.0
1941	282	377	119.0

RELATION OF DOMESTIC SALES OF FARM EQUIPMENT OTHER THAN TRACTORS TO THE GROSS NATIONAL PRODUCT 1929-1941



If the billion-dollar-production level is entirely feasible, there still remains the question of whether it is probable, given substantially full employment in the United States. Following the war, the Army will dispose of a large number of crawler tractors, but whether they will be returned to this country or left abroad for reconstruction work cannot be foretold with certainty. In any case this liquidation must be considered as a possible disturbing factor, tending to reduce sales from the projected level.

Secondly, there are the jeeps — both those sold by the Government and those redesigned and produced commercially for sale to farmers. It seems quite probable that the jeep will find a place on many small farms, and as a new member of the farm equipment family will participate in the farm equipment sales as projected here. The immediate post-war prospect is that if large numbers of jeeps are returned to this country and sold by the Government, the market for small-wheel, garden, and used tractors will be partially satisfied with this source.

Most important, however, are the possible limitations on the requirements of the American market. As in pre-war years, wheel tractors probably will account for about a quarter of total domestic farm equipment sales, which at the projected level would mean something like 260 million dollars, or 400,000 tractors.

Saturation Point Involved

The number of tractors on farms has been steadily increasing over the past 20 years, until today there are 2 million on American farms, compared with half that number in 1930. It is obvious that a ceiling will be reached at some point. Already, in the Middle West, the number of tractors is well above the number of farms of 100 acres or more. Furthermore, even at high income levels, it is likely that 3 million farms will earn 85% of the farm income.

With these considerations in mind, it seems probable that several years' tractor production at the rate of 400,000 per year would rapidly build the total stock up to the saturation point, even assuming extensive junking of tractors built in the twenties. When this point is reached, the relation between tractor sales and the gross national product which held over the 1929-1941 period will be modified, more or less, depending on how much can be done to build up the second-hand tractor market.

Second-Hand Market Development

It probably will be necessary to make substantial shipments of used tractors into low income areas. Possibly an outlet can be found abroad. Perhaps the second-hand tractor market will one day be as highly organized as the second-hand automobile market, and even the poorest farmer will be able to afford a jalopy tractor. In any case, manufacturers will want to study closely the experience of other durable goods industries which are already producing largely for a replacement market where the total number of machines in use remains fairly constant.

Similar considerations apply to other farm tools now used on highly mechanized crops. A saturation point would be reached at a fairly rapid rate if total farm equipment sales stayed at a billion dollars for several years. On the other hand, the cotton crop is not yet mechanized, and the recent announcement of a successful picker indicates this will be an important post-war development. The hay crop is comparatively unmechanized.

On balance, this cursory examination of the special factors affecting the post-war market for farm equipment suggests that full employment in the United States would lead to domestic sales of possibly a billion dollars in the first such post-war year, but that in succeeding years the saturation factor would begin to play a part, and it would be unwise to rely on a mechanical projection of 1929-1941 experience to predict sales in this new situation. Even so, replacement sales would undoubtedly keep the total volume at what would have been considered a high level in the thirties.

Most of the foregoing relates to a hypothetical case. In fact the post-war sales of farm equipment will depend on what level of employment we are able to reach, as well as on what happens to some hitherto depressed farm areas, what new machines can be developed, and the number of tractors that can be used on American farms. These long-range factors are remote from the immediate decisions controlling the manufacture and shipment of hundreds of types of machines into many different areas, and they do not affect local competitive conditions. Nevertheless, it is important to raise these questions now, to prepare for the opportunities as well as the hazards facing the industry in the post-war world.

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REPROCESSING OF HAND FILES ENCOURAGED

War plants are encouraged by the Conservation Division of the War Production Board to investigate the practice of reconditioning hand files.

A survey made by the Tools Division of WPB, in which leading aviation, ordnance, and industrial plants were questioned, indicates that this procedure increases the life of the file by approximately 60%, that the cost of reprocessing is from one-half to one-third that of a new file, and that conservation of 600 tons of high-carbon steel and a substantial saving of man-hours can be effected through widespread reconditioning of these tools. It was reported, too, that deliveries of reprocessed files generally were more prompt.

The resharpening procedure is not a new development, although in normal times, when man-hours of labor and supplies of steel were ample there was no great demand for this technique.

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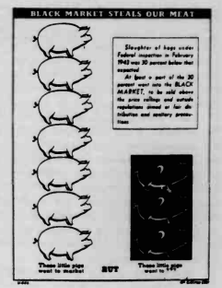

"Markets After the War"— Industrial Machinery

By W. H. Myer
Machinery Unit, Bureau of Foreign and Domestic Commerce

The basic, though admittedly optimistic, assumption in "Markets After the War" is that 96.5% of all those seeking work will be employed. Such a condition would provide a powerful stimulus to the capital goods industries and, particularly, to the production of industrial machinery, for, coupled with an immense demand for manufactured goods we would have what is in effect a scarcity of manpower. Under such circumstances the only way to meet the demand for factory products is to give each worker more and better machinery, and inevitably American management turns eagerly to that solution, as it has always done in the past under similar conditions. Equipment offering increased output and improved quality of product finds ready buyers.

"Markets After the War" is in part a study of probable distribution of expenditures for commodities when a high level of employment exists, and it affords food for thought as to equipment purchases that may be expected at the assumed employment level. By implication, it points out to manufacturers the value of analyzing now the post-war policies which will prove most effective in promoting employment and production.

Classes of Machinery Considered

The items of industrial machinery referred to in Table III in the publication and included in this discussion are the following general classes: Factory machinery, mining machinery, construction machinery, general and miscellaneous machinery and equipment, engines and turbines, pumps and pumping equipment, machine tools and accessories. (See table on page 15.)

Enumeration of all the specific types of machinery covered by these general headings would seem unnecessary elaboration. It is sufficient to say that the total comprises all types of production and service machinery except electrical, farm, and office machinery, but does not include equipment rapidly consumed in manufacturing processes, a typical example of which is metal-cutting tools, nor components normally entering into the assembly of finished products. Ball and roller bearings furnish an illustrative example of the latter. Transportation equipment (automobiles, trucks, locomotives, railroad cars, wagons and carts, ships and boats, aircraft) is specifically excluded.

The hypothetical expenditures, as detailed in Table III of "Markets After the War," are mathematical projections of past experience, without attempt to consider the effect of factors which may tend to affect the distributional pattern, some of which will be briefly suggested later. The chart on page 7 showing relation of domestic sales of farm equipment, other than tractors, to the gross national product, indicates the method employed in making these projections.

The values stated are the expenditures of ultimate domestic purchasers, including, in addition to manufacturers selling prices, distributors' mark-ups or commissions and transportation costs — a point which must be taken into account by any manufacturer in analyzing his own potential sales. Expenditures for imported equipment are a part of the total, but there is no reason to suppose that imports of machinery will be more expensive than in pre-war years, when they were negligible in comparison with the total domestic market.

Possible export sales are not included and constitute an entirely separate consideration.

Expenditures at Reduced Employment Levels

Purchases of machinery are much more susceptible to cyclical influences than are those of consumers' goods. For this reason it is desirable to show the projected expenditures at a level of production somewhat lower than that representing virtually full employment, if only as a reminder that orders for machinery are apt to decline more rapidly than total expenditures. A gross national product of 145 billion dollars has been taken for the purpose of illustration.

It will be observed from the table below that a decline of 12% in gross national product, from 165 billion to 145 billion dollars, would reduce projected machinery expenditures by about 15.5%. All past experience tends to show that the decline would be proportionately more severe as gross national product is further decreased.

So much for industrial machinery purchases as projected from past history. At the close of the war, however, we shall find ourselves faced in some respects by conditions for which there are no precedent, and which will exert powerful influences to distort the patterns of the past. In "Markets After the War," for the sake of simplifying problems, the assumption is made that the immediate post-war reconversion period is over. But re-equipping for peacetime production is too basic a factor in the potential expenditures for machinery to be dismissed so readily.

The greatly augmented war demand for certain types of equipment (machine tools, foundry equipment, cranes, Diesel engines, come to mind at once) on the one hand, and curtailment of production of some (textile machinery is one example), on the other hand, have destroyed the balance of production of machinery for the manufacture of those goods that will be wanted after the war. Thus, there will be in war plants a vast quantity of certain kinds of machinery (principally metalworking) which will not at that time be needed to produce armament. This writer advocates the formulation and announcement of a Government policy to maintain intact a number of these plants as the cheapest and most practical form of insurance against aggression toward the United States in the future. But the question of what disposal will be made of all this equipment hangs heavily over the possible post-war market for such things as machine tools and other metalworking machines. This problem is most acute in a comparatively limited segment of the industrial machinery field.

The Reconversion Problem

The existence of this excess of equipment made for war production leads naturally to a further question: How much of it can be reconverted with reasonable efficiency to the manufacture of goods to meet civilian needs? There are no data to provide a quantitative answer.

There can be no doubt that enough engine and turret lathes, milling machines, and other machine tools capable of a variety of operations will have been made by the end of the war to meet several years' needs, even at high production rates, and that these can be retooled quickly at moderate expense, and adapted for operations different from those they are now performing, with high productive efficiency. Plenty of such machines are in plants not built for armament production and which will go back as promptly as possible to making other goods. But what about specially designed equipment? To what extent can it be utilized?

To a great extent the answer will be found in the attitude of management. With the large demand for goods that accompanies full employment, production men cannot afford to be satisfied with "reasonable" or "moderate" efficiency. It will be profitable to scrap machinery the operation of which means higher production costs or lower output than can be obtained with newer machinery.

Hypothetical Projection of Expenditures for Certain Types of Machinery in Relation to Gross National Product

Expenditures for (millions of dollars)	Gross national product $165 billion*	Gross national product $145 billion
Factory machinery	1,079	921
Mining machinery	238	199
Construction machinery	333	278
General and miscellaneous machinery and equipment	1,848	1,560
Engines and turbines	150	125
Pumps and pumping equipment	396	334
Machine tools and accessories	984	831
Total industrial machinery	5,028	4,248

* Table III in "Markets After the War"

Producers of all kinds of consumer articles will have the opportunity, when reentering their chosen fields, to place on the market radically improved and more attractive goods, for in many instances they will be undertaking what amounts to a new start. The more progressive can seize the opportunity to free themselves of handicaps imposed by inadequate or inefficient equipment and will be inclined to place orders while active demand for their products is present.

The reconversion problem is important, however, only in those plants which made radical changes in character of output for war purposes. A substantial percentage of war supplies are such the same as those made in eras of peace. Nevertheless, firms which did not alter their plant equipment will be confronted with the same necessity of keeping their products up to modern standards and their costs competitive.

Depreciation During the War

Most of the active plants in the United States are operating longer hours, with less experienced personnel, and with less opportunity for thorough maintenance procedure, than prevail in more normal periods. Doubtless, actual wearing out of machinery has been going on at an accelerated pace, hastening the day when replacements will have to be made. While it is easy to over-estimate the replacement market at any given period, it is nevertheless a factor to be considered. Here again, management must in each case decide when a piece of equipment has reached the stage of wear that necessitates replacement rather than repair. Traditionally, the attitude toward replacement is liberal during periods of activity.

Labor Scarcity

Another factor enters here. Employment to the extent of 96.5% of the working population means that good labor is in fact scarce. This imposes the necessity of having equipment which can be operated by workers with a minimum of training — another incentive to the procurement of new machinery.

Saturation of Machinery Market

If it is conceded that an industrial machinery market of approximately the projected volume could be attained in a post-war year of full employment, the next logical question is: How long could such a demand be sustained? In years gone by such has been said about saturation of markets, but whenever purchasing power has been present the prophets of saturation have been confounded.

This Nation has never experienced a sufficiently long continuous succession of years of large machinery production to demonstrate where saturation takes place. In the case of a few types of machines, there is a recognizable limit to the number which can profitably be used even in a country as big as the United States, and this limitation is a definite problem to firms making only these particular kinds. In any event, the demand for machinery can never be completely satisfied as long as technical advance continues, with new and better designs of equipment providing incentives, from the profit motive, for dispensing with obsolescent machinery.

Inventive genius is not dead in this country. Totally new products, awakening desires in the consuming public, will continue to appear. To make such articles, plants, often requiring special types of machinery, will spring up. As long as reasonably full general employment prevails, machinery purchases may be expected to remain in good volume. It is absence of purchasing power for commodities, and not saturation, that destroys machinery markets.

Construction Demand

In "Markets After the War," total volume of construction in the assumed year of full employment is projected at more than 17 billion dollars. Whether this figure is accepted or not, there must be extensive construction activities requiring heavy equipment outlay, not only for machinery used by contractors but also for equipment installed, such as pumps, elevators, air-conditioning machinery, and the like.

The highway system of the United States is still far from adequate to meet our real needs. Given the prosperous conditions accompanying full employment, citizens will demand, and obtain, a highway program of large dimensions. Scarcity of labor will preclude making a pick-and-shovel job of construction work. The demand for uneconomic, make-work projects, carried on with a minimum of machinery, comes with lack of employment.

Materials Situation

The production of 165 billion dollars worth of goods and services involves consumption of vast quantities of raw materials, comparable to amounts now being used in the midst of war. In a sense, scarcity of materials could prove an inhibiting element in the output of machinery, yet demand for materials would equally spur production of equipment for the extractive industries — mining, for example.

There is evidence that new materials developed largely for war uses will be extensively utilized in the manufacture of civilian requirements, either as improvements or as satisfactory substitutes for materials in short supply. And it is certain that machinery will be needed to make these materials available in sufficient quantity.

Export Markets

The foregoing discussion applies solely to purchases of machinery for use in the United States. It is reasonable to expect a substantial added demand from abroad, which, incidentally, may perhaps absorb some proportion of the good used equipment that will be available at the end of the war. This is not the place to consider the extent of the probable export market, but it should add materially to the total production of machinery in this country.

Attainment of Full Post-War Employment

A few high lights of machinery markets with assumed full employment have been pointed out. The picture has been taken from an optimistic viewpoint, but most machinery builders probably will agree that market possibilities are not over-stated, provided the degree of employment is in fact attained. Is it not, then, worth an effort to make what is now an assumption into a post-war reality? Every employer can make his own estimate and his own contribution.

Office Machines

By O. H. Jakes
Machinery Unit, Bureau of Foreign and Domestic Commerce

In making any plans for the post-war period, the first concern of all members of the office machinery industry is reconversion and a return to production of typewriters, adding, calculating, bookkeeping and all the other office machines that have become an integral part of efficient management. Aside from the technical details involved, reconversion presents the qualitative as well as the quantitative problem. Most office machine manufacturers, who today are making motor parts, carbines, instruments and other precision products for war, will want to set up their manufacturing process to include some of the experiences gained and the raw materials used in war materiel production.

We can agree that restrictions on production and sales during the war years will have created a post-up backlog of customers to the extent that all production of office machines in the first year or two after the war will be sold much too readily. While it is only natural that each manufacturer will try to produce as many units of his particular machine or machines as he possibly can, peak sales will last only until the backlog is satisfied. Thoughtful planning for efficient post-war production should include a great deal of attention to the normal years that are to follow. Although this period of peak sales will not be a true index of normal post-war sales volume, some aspects of it will become factors in sustained business after the war.

A Seller's Market

Aggressive selling, for instance, will not be necessary for the first peak demand, but the sales staff will still be an important consideration. To the customer the salesman who calls on him is the company he represents. The so-called "order-taker" can handle this business only during the period while orders are there to be taken. Sales training is a laborious and costly process, as all manufacturers of office machines know, and the necessity of building up a whole new sales staff from nothing could well spell the difference between success and failure. For that reason the manufacturer who has retained at least a skeleton sales organization during the war years, will have a distinct advantage over one who has disbanded his sales staff completely, or let salesmen drift away one by one of their own volition until the sales organization no longer exists.

A seller's market will result from the demand for new office machines, since during the war years all offices will realize how very important efficient business machines can be to any business. It will therefore be only natural that all users will want new machines almost simultaneously, after having to do without for so many years.

It is likely that in some instances this excess demand might make it necessary for some manufacturers to formulate some sort of definite policy about, to borrow a word from wartime usage, priority of orders. While it should not reach the PD fore stage, users of large numbers of a given type of machine usually pay less per unit than the buyer of one or only a few machines. Theoretically, the latter is a better customer from the profit angle, but the large customer is very important because of volume. A definite decision might have to be made about the order in which first demands of customers are satisfied, and this decision may affect future normal business relations between manufacturer and customer.

Over Three Hundred Million Dollars in Sales

"Markets After the War," published by the Bureau of Foreign and Domestic Commerce, presents a hypothetical analysis of our economy in a post-war year, in which, as a result of maximum employment, the gross national product is calculated to reach the level of 165 billion dollars, based on 1942 price levels. Table III of this analysis projects this figure into expenditures for individual commodity groups, where, as a result of the trend revealed by past relationships of the office machine industry to total volume, the hypothetical volume of business for this industry should reach the figure of 330 million dollars, or slightly more than double the amount attained in 1940.

Our direct concern is with this 330 million dollars of domestic business that office machine manufacturers might expect as a result of a gross national product of 165 billion. Please note that exports are not included in this hypothetical projection, although in this industry exports are always a substantial part of total production. Imports, however, are included but in the office machinery field these are a negligible factor and can be disregarded.

Prosperity and Office Machines

This volume represents 0.2% of the hypothetical gross national product although, with the exception of 1941, sales volume never reached that proportion. The average ratio over the 13-year background period was 0.1616%, and in 1933 office machine sales were only 0.1108%. However, like other capital goods, office machines respond to periods of prosperity much more sharply than other goods, and it is only reasonable that this increase in a period of full employment could approach this level, possibly even exceed it.

If average ratios were to be used to forecast volume of business, the period from 1937 through 1941 would serve as a better index, and in this period the volume of business was 0.1643% of the gross national product, which would indicate that in an economy of full employment the least that could be expected for the office machine industry would be a volume of 304 million dollars, or roughly just about 8% less than the hypothetical volume set forth in "Markets After the War."

Actually, many factors will have to be considered in attempting to analyze this figure to see what it could mean for the individual manufacturer or the producers of a given type of machines. The biggest single factor will be preparedness of the individual or group to do their part in an economy of full and productive employment.

Planning for what is to come is an important part of such preparedness. It would be illogical to assume that the office machine industry will automatically do a 330-million-dollar business simply because the gross national product might be 165 billion in a typical post-war year of full employment, just as it would be ridiculous for a given manufacturer to assume that his share of that volume will be 33 million dollars simply because his business usually constituted 10% of his industry. He knows that as the result of his effort and ingenuity in finding new sales outlets or developing better machines, the volume for his industry reached a certain figure. The volume is the result of efforts of individual members, not the starting point from which members of an industry take a share. The potential volume is based on results in the past, and if the members are on their toes to the extent that they were in the past, and if all problems are satisfactorily solved, the potential should become fact as the result of their joint efforts in this direction.

Some of the factors that are bound to affect the industry as a whole can be listed and discussed briefly in subsequent paragraphs, others that might be individual for a single manufacturer or that might affect all makers of a certain type will be problems for the individual or group to solve, just as company policy or group sales practices are decided by the individual or the members who are affected.

Even a prophet could not hope to answer the first question that will immediately arise: "How long will the war last?" "Markets After the War" arbitrarily assumes that 1946 will be a typical post-war year. In other words, reconversion and all the necessary other readjustments from a war economy to a period of productive peacetime occupations will have taken place by the end of 1945. War has brought us innumerable controls over almost all phases of what we liked to consider our normal life, and therefore in addition to flexibility, any plans for a resumption of peacetime activities after the war must taken into account, in addition to the time element, the possibility that some of these controls might be necessary for some time after the war to prevent potential distortions in the distribution of raw materials, possibly even finished products. How long these controls are retained will be most important to all industries that might be affected.

Benefits May Not Occur Immediately

As mentioned before, the first large-scale demand immediately following the end of hostilities will not constitute an index of potential post-war business. It is very probable that there may be a definite recession following the first turmoil of activity as a result of having to do without during the war years.

It is the sustained level of a peacetime economy of full employment that is important and it should be adequately planned, not just hoped for as a natural phenomenon. In order to reach it, each individual manufacturer must contribute his share, and that share is worth planning. To borrow a term from one of the members of the industry, efficient production will be a problem of logistics. It will mean that there will have to be the right number of the right machines produced in order to be in the right sales office at the right time.

During the war years virtually all production of office machines was destined for use of the armed services. Once the war is won, these machines will be released from duty simultaneously with the men who will be returning to the peacetime jobs that will result from present planning for post-war production. The usual procedure followed in dealing with surplus equipment of any Government agency is to turn it over to the centralized procurement office, where it is retained for use in filling requisitions from other agencies.

Plans for Surplus Equipment

Equipment that is outworn through use, or too outmoded to be put back into service, is sold at auction. Most of this equipment would therefore be held for reassignment to other offices, although the large number of these machines may make it necessary for a major part of them to be sold regardless of condition or age simply for lack of adequate storage space. No definite plans have been made in this respect, however, and the above is merely a conjecture.

It might therefore be advisable to consider disposing of these machines abroad to satisfy first the most immediate foreign demands of the regions where our troops happen to be when the war ends. In addition, this policy would make it unnecessary to transport such machines back here only to find that some of them would be exported again to supply some part of the large foreign demands that new machine manufacturers will not be able to handle.

Export Sales Not Like Today

Exports have not been considered in the projections that "Markets After the War" has made for a typical post-war year of full employment. Manufacturers of office machines know how important a part exports were of total business and, after allowing for a peak demand in the first immediate post-war period, export markets will respond to sales promotion in very much the same manner as they have in the past. Even export sales never just happened! They had to be planned and worked for, just as the goal each manufacturer sets for himself in the post-war era, will be worth planning and working for. Each manufacturer can best tell about how much more he has to produce to take care of export markets, in addition to the role he sets for himself in the domestic post-war economy.

Saturation of the market, and the question of replacements in a typical post-war year, have not been mentioned, since too much could be written on both subjects. Replacements will take care of themselves in time, and by means of better and more efficient machines; also, I think the industry will agree with me, that saturation with office machines is too far off to present an immediate problem.

A hypothetical projection for the industry is purely a mathematical procedure. Attainment of his potential is a personal problem for each manufacturer that he, and he alone, can solve. Its solution depends in large part on what he is doing today, and what plans he has for the future. Simplification of machines or reducing the number of models may be the right answer for one; concentration on one type and elimination of subsidiary types may be planned by another. It is definitely their problem, and if these lines simply serve to show the importance of planning now for what is to come, the chief purpose of this article will have been achieved.

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INITIAL GUAYULE RUBBER HARVEST YIELDS SEVERAL HUNDRED TONS

Several hundred tons of guayule rubber the first natural rubber to be produced industrially in the United States since Pearl Harbor are being extracted by the Forest Service for war needs.

The rubber harvest is part of the Government's guayule operations involving extensive plantations in California and the Southwest.

Although the Department of Agriculture emphasized that this year's rubber output will be a mere fraction of the Nation's needs, it is the first guayule rubber actually produced under the Department's Emergency Rubber Project launched in March 1942.

Rubber Content Highest in Winter Months

The rubber is being processed chiefly from an old plantation of guayule purchased by the Government in the Salinas Valley of California. Approximately 550 acres, from which a yield of 4,000 tons of shrub is expected, are being harvested. Digging, baling, and trucking the shrub to the factory began in mid-January, for it is during the winter season that the rubber content of the plants is highest.

On the basis of small samples already processed, the total yield of this year's harvest is expected to reach approximately 600 tons of rubber, which will be turned over to the Rubber Reserve Co. for allocation to war uses.

An investigation of the industry, directed by the Army 13 years ago, prophesied that development of guayule rubber production in America "would in the event of a war where our overseas communications were interrupted be of inestimable value to the Nation."

The 13-year-old guayule shrub harvested for the current rubber extraction operation contributed an important share of the bumper seed crop collected by the Forest Service in the summer and fall of 1942. This seed harvest made possible the rapid expansion of the project.

Nursery acreage has been extended in the Salinas area, and new nurseries have been established at Indio and Oceanside, in southern California. Other smaller nurseries are being developed near Bakersfield, Calif., Phoenix, Ariz., Las Cruces, N. Mex., and Brownsville, Tex.

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Railway Equipment In Post-War Market

By W. Rodney Long

MACHINERY AND MOTIVE PRODUCTS UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

THE INDICATED measure of increase in the value of output of the locomotive and car-building industries by 1946, according to "Markets After the War," has been projected at 170 percent over 1940 for a total valuation of $830,000,000. The measurement is based on arbitrary assumptions—that the war and the immediate post-war reconversion period will be over before 1946, that 96.5 percent of those seeking employment will have productive jobs, and that prices will remain the same as in 1942.

Capital expenditures by class I railways in 1942 for equipment manufactured by locomotive and car-building industries totaled $339,000,000, against $355,800,000 in 1941. Expenditures in 1942 for equipment demands by the armed forces, mining and industrial expansion programs, Lend-Lease, and the export market, coupled with the railway expenditures just mentioned, are believed to have approximated the projected 1946 value of all such expenditures. The 1941 program of class I railways represents the largest value of expenditures for equipment since the peak years of 1923 and 1924, when the totals reached $658,700,000 and $474,100,000, respectively. The projection, therefore, assumes an even higher level in value of output necessary to meet railway requirements than that which followed the last World War.

Material Shortages Possible

The extent to which the valuation assumed for 1946 will be accomplished is dependent on several factors, but the projection at least sets up a prospective goal toward which it is believed possible to work.

One factor which may develop in the reconversion period, when currently unknown relief and rehabilitation programs must be worked out, is the prospect of a material shortage resulting from competition by other industries requiring component parts from suppliers to the locomotive and car builders. This limitation is now preventing all but the more urgent requirements of the domestic railways from being met.

Reconversion Problem

Articles of war currently surpass in value the production of locomotives and railway cars as the industries' chief products. In the locomotive industry, military production is highly concentrated in a few plants of the larger builders, whereas the smaller builders produce little or no material of this character. Other plants of the major builders are continuing to produce locomotives for both military and civilian usage at a rate which in 1943 exceeds their normal peacetime production.

The car-building industry is in a somewhat different position. A number of its plants have been almost entirely converted to military production, while in others such cars as are authorized by WPB are being built. The production in no way utilizes the capacity of the industry. In 1940–41 both industries utilized existing facilities or idle plants which were retooled. Later, new plants were constructed and placed in operation.

Owing to the plant expansion, more locomotive and car-building capacity will become available, with cessation of hostilities, than existed in the pre-war period. While specially equipped shops will have to be retooled, there still should be an increased capacity available immediately. To what extent will this capacity be utilized for civilian needs? Currently there are no data available to supply the answer. Will the domestic railways be able financially to go all out for a rehabilitation program? Will the locomotive and car-building industries utilize their experiences of wartime production to diversify their products? To what extent can expanded capacity for armament production be utilized?

These are some of the questions to which manufacturers should now be seeking answers, and it was with the idea of bringing thought to bear upon such questions that "Markets After the War" was prepared. The purpose of the publication is not to present forecasts or attempt to appraise potential markets but to provide a starting point from which those engaged in industry may analyze such markets and plan how best to meet the probable conditions which will confront their particular industry in the post-war era.

"Markets After the War" assumes the 1946 gross national production of equipment and services to the value of $165,000,000,000, which necessarily entails the consumption of raw materials comparable to wartime production usage. Much of this production will be in the durable goods field, requiring considerable quantities of finished steel—a material most necessary to the car and locomotive builders.

Shortage of this material is the most important limiting factor in the current production of cars and locomotives and the extent to which it will be available in the post-war period—notwithstanding the increased capacity of the steel industry—for the production of this equipment is worthy of consideration by the two industries in formulating their post-war plans.

Prospective Export Markets

Exports have not been considered in the projection estimate in "Markets After the War," which contemplates a typical post-war year of full employment based entirely on United States expenditures. However, foreign demand should add to the production and therefore is worthy of consideration.

The question of future export markets resolves itself into two problems, namely, the rehabilitation program's demands and the normal expectancy of the export market. Naturally neither problem can be satisfactorily solved at the present time. There are approximately 50,000 locomotives and 1,250,000 freight cars on the principal railways in the occupied or formerly occupied countries in European and North African areas. To these figures should be added 4,600 locomotives and 82,000 freight cars in those countries now occupied by Japan. Many of these cars and locomotives are in poor condition and shortages exist in many countries.

To what extent this equipment will be further affected by military movements cannot now be estimated. Replacement of some of the locomotives and railway cars will necessarily have to be supplied from this country although it is anticipated that to a limited degree in the preliminary stages it will be done from production under the current Army Supply Program.

The rehabilitation program, when it is finally set, will require no post-war initiative on the part of the builders, and consequently can be bypassed in current post-war thinking. The extent of the program will be determined by the need or necessities of the reoccupied countries as developed by the Allied Post-War Requirements Bureau. Presumably, such requirements as will have to be supplied from this country will be subject to public bidding under Federal control.

Notwithstanding the prospective demands of this rehabilitation program, it is believed that manufacturers now should direct their thinking to the pre-war export markets, primarily our neighbors to the South. Their needs for this equipment are not currently being met except for urgency requirements accompanied by full end-use justification. Extensive railway construction programs in several of the American republics have been canceled but most of them will be carried out after the war. It is in this particular field that the locomotive and car-building industries should now be directing some attention as to how best to obtain this business in competition with the foreign builders. Pre-war experience in these markets has indicated time and again that this competition is not entirely based on quality or performance and it is only reasonable to expect a continuation of such practices in the post-war era.

To what extent are you, as a builder of this equipment, now preparing to meet the forthcoming challenge?

Future Outlook in Pulp-Paper Trade

By W. LeRoy Neubrech

DIVISION OF INDUSTRIAL ECONOMY, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

The future holds tremendous opportunities for industry and business. Looking far ahead, however, no single important industry can plan merely in terms of local conditions because eventually the welfare of every business and every person will be influenced more and more by social and economic conditions in the world at large.

Bold Action Is Required

The pulp and paper industry, being one of the Nation's important employers and a producer of products valued at more than 2 billion dollars, is a very important member in the family of industries upon which the economic welfare of the country depends. The industry can do much to achieve a still higher level of production and employment through careful planning. This will require bold thinking and bold action by each and every pulp producer, paper, paperboard, and converted paper products manufacturer and distributor. Assuming 1946 as the first post-war year after the period of reconversion and considering 1941 as the base year, achievement of an 18-percent increase in the tonnage production of wood pulp and a 36-percent increase in the output of paper—gains believed to be potentially possible—will depend upon the development of proper attitudes and thinking by individual producers and by cooperative attitude of the industry as a whole with respect to over-all policies and its relationships with the Government.

New Markets—New Products

From the industry's point of view there must be, first of all, a clear understanding of the changed conditions that lie ahead. Some of the old-world trade markets will be gone but vast new markets in international trade will be opened. New products made of pulp and paper will supplement those already in existence. Improved manufacturing methods induced by wartime innovations will increase efficiency.

These developments all point to increased output, but this will not come about automatically. Several problems must be solved. How will the concentration of labor supply in war production centers affect the post-war labor market? Will new products made of paper, such as fiber cans and boxes, be able to compete successfully with steel and wood products in a peacetime economy? What steps must be taken to create good will and insure lasting and profitable world markets for United States pulp and paper? How will future tax policies affect the cost structure of individual firms in the industry? What will be required in the way of new investment in plant and equipment and replacement of old machinery worn to scrap by peak war production? These are merely a sample of the detailed questions that must be studied, reformulated, and intelligently thought out by those responsible for industry policy and firm management. The purpose of this article is merely to indicate a broad range of various approaches.

Labor Situation

The pulp and primary paper industry is largely rural, with more than 60 percent of the mills located in communities of less than 25,000 population. War production, for the most part concentrated in large metropolitan areas, has tended to attract workers with the lure of higher salaries. This has been particularly true in the Pacific Northwest, where the shortage of woods labor has been most acute. Once established in larger cities and having acquired new skills it is unlikely that the majority of these workers will voluntarily return to their former occupations.

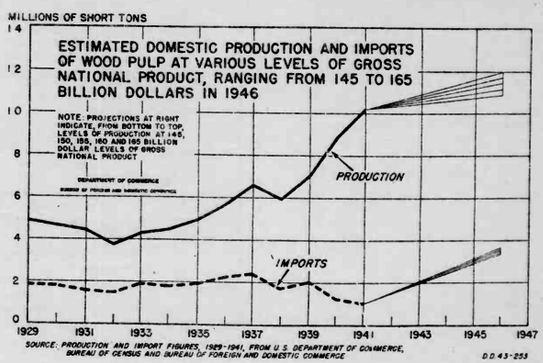
This situation can have a variety of repercussions. It may mean that pulp producers (and paper producers, perhaps to a lesser extent) may have to offer higher wages to workers. This might well increase the price of pulp. This in turn would tend to stimulate a greater use of pulp in end-products, such as rayons, plastics, and other synthetic materials, of higher value than the traditional paper. Or events may develop entirely differently.

Factual Survey Needed

If we experience a natural decline in the war industries, not offset by an expansion in peacetime production, a new labor reserve may be created which will be available to pulp and paper producers. The practical steps to be taken by individual firms at the present time in those areas affected by a labor shortage should be a factual survey to discover where labor has gone, whether it is likely to return after the war, and what adjustments in wages, production technique, and personnel relations need to be made.

The post-war labor problem will vary in different sections of the country. Some areas can afford upward wage revisions, without any serious dislocation of markets, while in other regions wage advances would greatly disturb price and cost structures. If forces are set in motion in the post-war world, whether as a result of changed labor conditions or other factors, which inevitably point the way to new centers of pulp and paper production, it will be the responsibility of present producers to discern these trends.

Prior to the war, exports of pulp and paper accounted for a relatively small part of total sales. Pulp exports averaged only 3 percent of domestic consumption from 1935 to 1941 and exports of paper amounted to about 2 percent of consumption for the same period. However, during the war period the importing United Nations have become increasingly dependent on United States and Canada for supplies of essential papers, and the trade relations developed under the stress of war will exert a powerful influence in post-war markets.



The increased use of paper within a country displays a close relationship to its general cultural and industrial advancement. Books, newspapers, elaborate packaging, and trade activity all require a large volume of paper and are marks of a highly complex civilization. From this rather obvious generalization, it becomes evident that the most expanding markets for paper after the war should be those nations such as China, India, and certain Latin-American republics which anticipate increased industrialization.

Two Viewpoints

Broadly speaking there are two viewpoints on post-war foreign trade. The first is the use of tariffs to prevent imports into this country of low-priced pulp and paper, thus absorbing the entire domestic market and "dumping" any excess production in foreign countries, regardless of cost. The second is to promote a doctrine of "quasi-free" trade which will permit imports of wood pulp and paper produced more economically in other countries and encourage exports from the United States of high-priced papers which can compete in the world market on a price and quality basis. Such a program gives the advantage of low prices to both importing and exporting nations and offers a basis for lasting trade relationships.

These are two extreme positions, and a whole range of possibilities lie between these limits. The problem may be too complex to be dealt with in terms of the whole country. For example, it may be more logical and economical for pulp of a particular grade to be imported from Norway and Sweden to paper mills along the eastern seaboard, and the Pacific Northwest pulp producers to serve China rather than transporting western pulp across the continent. Here the cost of transportation is involved. Even if there were only small differences between production costs of European and North American pulps, low ocean freight rates might become a deciding factor in influencing world trade. Then there is the likelihood of certain technical developments during the war making it possible for American pulp or paper manufacturers to produce more economically and perhaps undersell foreign products in world markets. Serious consideration must be given to all these factors in appraising future foreign trade.

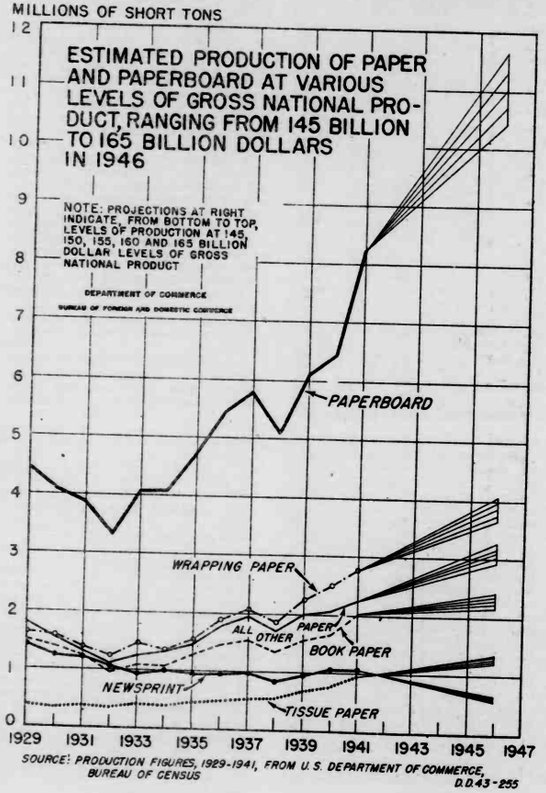
Possible Problems

A large amount of excess productive capacity and marginal plants characterized the pulp and paper industry prior to the war. Although these facilities have served us well in wartime when demands for all materials are practically insatiable, there is some reason to believe that the problem of an over-expanded industry may again face producers after the war. But such a condition would not mean that particular mills would not have to make capital expenditures. Large firms strategically located will have to expand and replace equipment to meet new markets, while less fortunate plants may have to convert to a different type of production, or cease operations. The high level of activity during the war is enabling many firms to accumulate adequate reserves to make these necessary readjustments.

Probably the greatest expansion will be necessary in the field of converted paper products, where a score of new containers and miscellaneous household paper items may result from the war. Several of these new products will require special machinery for mass production. On the other hand, will war-stimulated technical developments result in more pulp and paper becoming fabricated parts or "fusions" in the actual construction of products after the war? Will some new type of paper be used as parts of airplanes? Will pulp wallboards or insulating materials gain a larger share of the construction market? Channels of distribution will have to be set up and paper manufacturers may display keen competition for these new markets. The organizing, financing, and initial managing of such new enterprises will require substantial capital expenditures.

Effect of Taxes

All industry after the war must consider the effect of taxes. A recent study made by the National City Bank of New York (see National City Bank Letter, April 1943, p. 45) revealed a 25-percent decline in net income after taxes in 1942, compared with 1941, for 73 firms in the paper products industry. This decline in net earnings is largely the result of increased taxes, although costs of production in the form of wages and raw materials also rose in 1942.



SOURCE: PRODUCTION FIGURES, 1929-1941, FROM U.S. DEPARTMENT OF COMMERCE, BUREAU OF CENSUS

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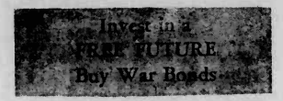


Taxation has become much more than an instrument for raising revenue. It has become a method of directing social and economic activity. Aside from the huge war debt which must be serviced from taxes in the post-war years, the public may approve a policy of granting tax concessions in some cases and imposing penalties in others in order to channel productive energies in a certain direction. This probably has fewer implications for the pulp and paper industry than for other enterprises, but the principle of taxation for social control can apply to corporations as well as individuals. It is interesting to note that in this use of taxation the rate may be relatively unimportant. Of greater significance is where the tax is applied, what exemptions are warranted, how the tax is administered, and what type of industrial management is best suited to the tax structure.

Mechanical Projection

The actual physical production of pulp and paper in a given post-war year cannot be ascertained. Activity within the industry will depend largely on the outcome of decisions of the Government and producers regarding the previously mentioned factors. However, on the basis of trends and arbitrary assumptions it is possible to project post-war production statistically. "Markets after the War," a recent release of the Department of Commerce, presents such a mechanical projection for end-use commodities in a post-war year (1946 was chosen for illustration) in which total gross national product is arbitrarily placed at 165 billions of dollars, assuming, "(*a*) that the war and the immediate post-war reconversion period will be over before 1946; (*b*) that 96.5 percent of those seeking employment will have productve jobs; and (*c*) that prices will be the same as in 1942." Inasmuch as primary paper and pulp are not, for the most part, consumed as end-use commodities they do not appear in these projections.

Table III in "Markets After the War" gives hypothetical projections for expenditures on magazines, stationery and writing supplies, books, and miscellaneous household paper products; but these retail dollar expenditures include cost of the value added in printing, binding, and conversion, and therefore are considerably higher than the value of the primary paper or pulp output. Since paper and paperboard are facilitating goods used for packaging, or as raw materials in the case of printing, these products are in the final retail value of many consumers' and producers' articles only as a part of the production cost.

Using the same techniques employed in arriving at the projections in "Markets After the War," it is possible to obtain figures of output for pulp and paper in a post-war year. These may be regarded as estimates or not, as the reader chooses. They are not production forecasts. (The details of the method employed are available on request from the Pulp and Paper Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C. It need only be stated here that a multiple regression equation based on observations from 1929 to 1941 was derived to estimate output in 1946, the post-war year chosen for illustration. Variations of this same technique, as is pointed out in "Markets After the War," may be applied to the individual firm. The Pulp and Paper Unit will be pleased to assist representatives of firms interested in making such studies.)

Chart I and table I show the estimated production and import of wood pulp. Chart I depicts possible levels of import and production of wood pulp in 1946, at various levels of gross national output ranging from 145 to 165 billion dollars, assuming that the immediate post-war reconversion period will be over before this date. It must be kept in mind that gross national product, or expenditure, is in dollar values and is influenced by price-level changes as well as productivity. Our productive capacity will be greatly enlarged after the war, but if political developments or other factors adversely affect the state of business confidence, causing low prices and unemployment, gross national product may fall below 145 billion dollars. On the other hand, at a high plane of prosperity and at the general price level prevailing in 1942, we may expect a gross national product of 165 billion dollars or more.

Post-War Outlook

The projections of wood pulp imports in 1946 were arrived at by taking the trend in percentage relationship to total production plus imports from 1925 to 1939 and applying this to estimated production plus imports in 1946. The years 1940 and 1941 were not included in establishing this trend, because World War II in these years had interfered with exports of European pulps to the United States. As a result of this interference, domestic production was expanded to meet this Nation's needs. Thus, the post-war outlook, assuming a resumption of imports relative to the years before 1939, is for a general leveling off in production and an increased volume of imported pulps.

Production estimates for paper and paperboard are presented in chart II and table II. It will be noted that the projections are up for all types of paper, except newsprint. However, since substantial quantities of newsprint are imported from Canada, the actual consumption level is likely to be somewhat higher.

TABLE I.—*Estimated production and imports of wood pulp in 1946 at various levels of gross national product* [1]

Levels of gross national product in billions of dollars	1941	1946				
	119.20	145.00	150.00	155.00	160.00	165.00
Item	*In millions of tons*					
Domestic production	10.20	10.89	11.17	11.44	11.72	12.00
Imports	[2] 1.00	3.35	3.43	3.52	3.60	3.68
Apparent domestic consumption [3]	[2] 11.20	14.24	14.60	14.96	15.32	15.68

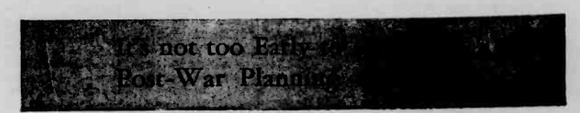
[1] Includes total expenditures for consumers' goods and services, capital formation by private enterprise, and the product of Government.
[2] Estimated; actual figures not available for publication.
[3] This figure does not take into account exports of pulp or adjustment for stocks and, therefore, does not accurately represent consumption. However, these items are relatively insignificant, with exports averaging only 3 percent of domestic consumption from 1935 to 1941.

TABLE II.—*Estimated production of paper and paperboard in 1946 at various levels of gross national product* [1]

Levels of gross national product in billions of dollars	1941	1946				
	119.20	145.00	150.00	155.00	160.00	165.00
Type of paper	*In millions of tons*					
Total	17.30	21.00	21.62	22.24	22.85	23.47
Paperboard	8.25	10.44	10.75	11.05	11.36	11.67
Newsprint [2]	1.05	.57	.58	.60	.62	.63
Wrapping paper	2.75	3.65	3.76	3.88	3.98	4.08
Book paper	2.02	2.18	2.25	2.31	2.37	2.44
Tissue paper	.95	1.22	1.25	1.29	1.33	1.36
All other paper	2.27	2.94	3.03	3.11	3.19	3.29

[1] Includes total expenditures for consumers' goods and services, capital formation by private enterprise, and the product of Government.
[2] Although domestic newsprint production displays a downward trend at estimated production levels in 1946, this does not necessarily indicate a falling off in consumption of newsprint. From 80 to 85 percent of all paper imported into the United States is composed of newsprint.

The future welfare and progress of the pulp and paper industry will depend upon bold and constructive leadership by individual producers, distributors, and foreign traders as well as by the associations representing the various segments of the industry. They must recognize the new position of all industry and be willing to act in accordance with new precepts. In the years after victory the potential goals set forth in this article will not be achieved merely by making quantitative estimates of post-war markets or merely by expanding productive capacities. Government, labor, agriculture, business, and consumers can accept a new sense of national responsibility in the post-war era and make this Nation an outstanding example of a vital living democracy. The pulp and paper industry should accept this challenge and benefit by it.



Peacetime Markets in Tires and Tubes

By S. Earle Overley

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BUREAU OF FOREIGN AND DOMESTIC COMMERCE

"Markets After the War" sets up a hypothetical market for 1946 on the assumption that hostilities will cease in 1944, that employment will approximate 96 percent of the available manpower, and that the gross flow for services will be $165,000,000,000. However, it is clearly stated that it is in no sense a forecast, but that it may serve as a preliminary basis for planning, as well as a starting point for market analysis. In the expansion of the market for replacement tires and tubes the "preliminary" must be emphasized.

Rubber and its substitute, without a doubt, is in the shortest of supply of all the critical materials; thus from a supply standpoint it must be treated with a certain amount of reservation. As far as this discussion is concerned, it will be assumed that the supply of both natural and synthetic rubber will be adequate for the post-war period.

New Methods Required

The substitute for crude rubber—synthetic rubber—is just coming into production, and with it comes the problem of adaptability to the present manufacturing methods or the formulation of new methods. These problems must be solved. Again the assumption for 1946 is that methods have been standardized and that synthetic rubber is a worthy substitute for natural rubber wherever conditions are favorable for its use in large volumes.

Casings and tubes, either for equipment on new vehicles or replacement on vehicles already in use, are not primary merchandise. Their volume of replacement sales depends upon the available number of cars and trucks in use to which they can be applied; therefore a study of available cars and trucks must be made.

Gross Flow Estimates

The figures in table III, "Markets After the War, Semidurable Goods," for replacement tires and tubes do not include replacements for all passenger-car and truck casings and tubes. In order that a more nearly complete estimate may be made, the table III figures have been expanded, right, to include all passenger-car and truck casings and tubes for the period 1929 to 1940, and the projected estimate for 1946.

In order that comparisons may be made of the gross flow estimates with passenger-car and truck registrations and replacement casing and tube movements the table opposite is presented.

The table on gross flow shows that in 1929 the estimate assigned to replacement casings and tubes was $658,900,000 from the total of $99,400,000,000, and the projected estimate for replacements in 1946 is $649,800,000 from a total projected figure of $165,000,000,000.

In 1929, when replacement sales of $658,900,000 were made against a gross flow of $99,400,000,000, there had been a steady increase in motor-vehicle registration for many years past. The registration had more than doubled in the previous 7 years, thus there was a multiplying demand for replacements from the increased sales of cars and trucks.

It may be hard to comprehend such replacement sales in comparison with the gross flow; nevertheless it is a barometer which may be used for analysis.

GROSS FLOW ESTIMATES

[In millions of dollars]

Year	Total gross flow	Casing and tube replacement gross flow
1929	99,400	658.6
1930	88,200	546.1
1931	72,100	479.1
1932	55,400	399.9
1933	54,800	307.1
1934	63,800	338.0
1935	70,800	344.1
1936	81,700	343.6
1937	87,700	396.4
1938	80,600	364.5
1939	88,600	421.9
1940	97,000	384.5
1946	165 000	649.8

MOTOR-VEHICLE REGISTRATION AND REPLACEMENT CASINGS SHIPMENTS

[In millions]

Year	Passenger-car		Truck	
	Registration	Replacement [1] casing shipments	Registration	Replacement [1] casing shipments
1929	23.1	43.9	3.4	3.2
1930	23.1	36.2	3.5	2.8
1931	22.4	36.0	3.5	2.8
1932	20.9	30.3	3.2	2.9
1933	20.6	29.1	3.2	3.4
1934	21.5	28.8	3.4	3.4
1935	22.6	26.2	3.7	3.4
1936	24.2	26.1	4.0	3.7
1937	25.4	25.7	4.3	3.6
1938	26.3	27.3	4.2	3.5
1939	26.2	33.4	4.4	4.6
1940	27.4	30.9	4.6	4.4

[1] Rubber Manufacturers Association reported shipments adjusted for completeness.

The projected total gross flow for 1946 is more than adequate when compared with that of 1929 to justify the replacement estimate of $649,800,000 but, as stated previously, replacement casings and tubes are not primary merchandise. Their replacement sales are governed by the number of available vehicles.

Production and Demand

The projected estimates are predicated on the termination of the war in 1944. Should that prove true, car and truck production on a large scale could not be accomplished until 1946. Thus, the present cars and trucks, less their mortality, must be used as a basis of calculation, with a possible appreciation through sales of cars, jeeps, and trucks by the Government to meet the enormous demand during the manufacturing change-over period in 1945. The car and truck registration at the beginning of 1946 could not exceed 27,000,000, even though the Government should sell from its stock. A possible vehicle registration of 27,000,000 is in excess of the registration in 1929, at which time casings sales were in excess of 47,000,000 units. The replacement factor for the year was approximately 1.78 per vehicle, based on shipments.

Based upon the program as outlined for 1943 by the Office of the Rubber Director on new and used casings and recaps, plus approximately 30,000,000 new and used casings and 15,000,000 recaps for passenger car service, and enough new tires along with recaps to sustain the present truck and bus service for 1944, the unused tire mileage at the beginning of 1945 will be about on a par with that of the present, provided no liberalization in gasoline rationing is allowed. Very little more relief may be expected in 1944. Regardless of synthetic rubber production in that year, available labor and equipment will not be adequate to produce more than 25,000,000 to 30,000,000 tires for civilian use. Carcasses for recapping will be at an all-time low and used casings of any value will be practically nil.

Leveling of Demand Required

Add a full pocketbook to the above-mentioned conditions and the replacement demand for 1945 could easily be driven in excess of 80,000,000 casings. This demand, added to the pronounced original equipment demand which would be expected during the latter part of the year, would overtax capacities to such an extent that the requirements carried over into 1946 would be very large.

If it should be possible to supply the enormous demand for new cars and to junk the old ones that were traded in, as has been the practice in previous years, there would be a decided "low spot" in replacement sales of tires until use of new cars could raise the trend, but on a sustained high level of gross flow it would be necessary to keep as many as possible of the present cars in use for at least several years to supply the need until the automotive manufacturers could get their production geared to the consumer demand. Thus, there would be a replacement demand from these cars while mileage would be running up on the new equipment, and the replacement demand should be rather uniform.

The all-important subject of price has not been mentioned. There are too many factors entering into price considerations which cannot be answered. It is not known whether tires in 1946 will be manufactured from synthetic and/or crude rubber. Prices on either crude or synthetic rubber in 1946 cannot be forecast with any degree of accuracy. The costs of labor cannot be determined. Policies adopted by the manufacturers through choice or by necessity will have some bearing on prices in general. Will the manufacturers attempt to market from four to six price-level tires, or will this number be materially reduced? Will budget selling be expanded? Will the company-owned and chain store operations be restricted? Will the merchandise adjustment policies be changed? Will tire manufacturers continue to supply the fifth casing and tube to the car manufacturers as original equipment?

In summation, it would seem that the dollar volume of the 1946 replacement sales should be as large as that of 1929. The projected gross flow for 1946 is larger by 65 percent than that of 1929; the projected vehicle registration is very nearly the same; and the potential factor of replacement is larger. Although casing sizes are not relative for the two periods, 1946 replacement tires will average larger in size. This increase will be reflected in the unit price. The 1929 estimate for gross flow of casing and tube replacements was $9,000,000 larger than the projected estimate for 1946, but if the above assumptions are reasonably correct, the 1946 projected estimate will exceed the 1929 estimate.

Electrical Goods' Post-War Markets

By H. E. Way

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BUREAU OF FOREIGN AND DOMESTIC COMMERCE

THE ELECTRICAL apparatus and equipment industry in the post-war year 1946 should produce consumption goods valued, in 1942 prices, at $1,244,000,000, according to a mathematical projection based on past relationships. This total, reduced to a quantity basis, would be 130 percent of the output for 1929 (as an example of a pre-war year of large production) and is contingent on the assumption of full employment in the post-war year.

Electrical apparatus and equipment are durable goods. They may be divided into power-generating equipment, power-utilizing equipment, and accessories, such as meters and controls.

The public utility industry is carrying in 1943 loads which a few years back were not thought possible. The percent increase for 1943 over 1942 is greater than that for 1942 over 1941. The present rate of generation indicates a production of 218 billion kilowatt hours in 1943, compared with 95 billion kilowatt hours in 1929. This difference is not due entirely to increase in kilowatt capacity. Interconnection, increases in plant load and diversity factors, and reduction in percentage of reserves have permitted this increase in generation rate without a corresponding increase in generating capacity.

Once the tension of war producton relaxes, strict attention will not be paid to time of demand, but the year 1946, the post-war year considered in companion discussions of other commodities, could arbitrarily be adopted here. New refrigerators will be put into millions of homes. Electric service will be extended to millions of new consumers in rural areas. Dim-out conditions will cease. Electric signs will increase.

Orders for $50,000,000 worth of generating equipment are possible to supply future demands for electric current. To extend lines and to carry this current to the consumer will require more than this amount, possibly $75,000,000 more. Power utilization equipment may require from 10 to 20 times the capital expenditure needed for generating equipment. The same generator that serves the furnace to convert bauxite into aluminum may later heat the percolator which is fabricated from the metal.

The expenditure for power utilization equipment will be partly for the kind of goods which makes up the group presently under discussion and partly for radios, vacuum cleaners, and water heaters.

Industry will need, to maintain the mills and factories turning out other products, $100,000,000 worth of integral motors, to which sum may be added $25,000,000 for motor controls. Equipment for the production of heat for industrial processes would be valued at $20,000,000. Welding shows prospects of demanding as much as $30,000,000.

Communications, which include telephone and telegraph, may require $200,000,000 worth of equipment. The communication systems of the United States are planned far ahead of immediate requirements. Releasing lines that are now required for military uses will enable ordinary social messages again to be sent. The use of the telephone and the telegraph, being as it is a function of habit and custom, expands and contracts within wide limits. If the ordinary calling radius for casual calls were to be extended to 25, 50, or 100 miles, traffic would be multiplied several times. The possibilities of the use of radio by private individuals for intercommunication with mobile units extend the horizons of present use. At least $10,000,000 annually may be contemplated in some near year.

Frequency modulated broadcasting stations, amateurs, and the like may add $5,000,000 to the available business.

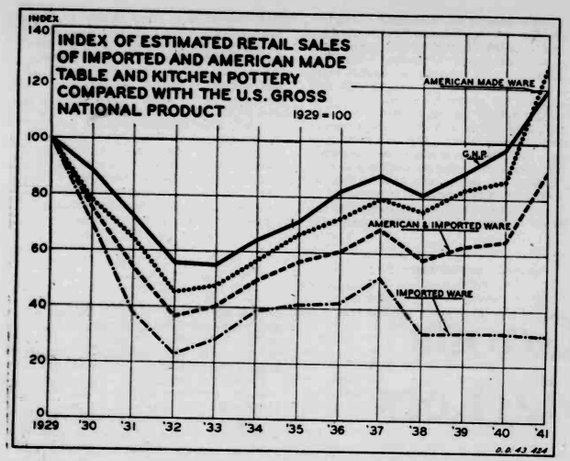
Electronics is a term applied to the application of devices employing a vacuum tube to control, amplify, or change the form of an electric current. The amount of its application is impossible to visualize. Some believe it could total $3,000,000,000 annually. This apparatus will be available to every industry—to count, to control, and to substitute for manpower in many jobs. The total for this group of devices may easily exceed $100,000,000.

The amounts which are enumerated are approximate and not predictions. The electrical apparatus and equipment industry is largely a dependent industry supplying the demands of other industries for electric power, communications, motors, and controls. If the gross national product totals $165,000,000,000, the amount projected in the Bureau's recently published book, "Markets After the War," the electrical industry will probably share in the proportions mentioned.

New Source of Quartz

Alabama has a new contribution to the war effort. Discovery of almost pure quartz pebbles in the gravel beds of Mortar Creek in Elmore County has brought a new industry to an agricultural community, and at the same time provides the solution to a problem presented by the war.

This type of pebble, which has a shape and smoothness that renders it vitally important in the operations of grinding machinery and kilns, was formerly obtained from France and the Scandinavian Peninsula. Although quartz pebbles are found in abundance in many parts of the United States, they usually contain a large percentage of other materials and are unfit for the purposes to which the imported ones were adapted.



Future Outlook on Glassware-Pottery

By Edward J. Detgen

SPECIALTIES UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

THE Department of Commerce recently published "Markets After the War—An Approach to Their Analysis," which was designed to assist American businessmen in setting their sights on a common goal of post-war opportunity. This report pointed out that in the post-war era the Nation's total output of goods and services (the gross national product) would have to approach $165 billion, in terms of the 1942 general price level, if we are to avoid serious unemployment problems. This would represent an increase of 38 percent over the 1941 total of $120 billion.

Start Must Be Made Now

What will be the impact on the table and kitchen pottery and glassware industries—producing all such items as cups, saucers, plates, casseroles, tumblers, bowls, crockery, and cooking utensils—of this high volume of goods and services, which we will refer to from here on as the post-war gross national product? Furthermore, what should be the goal of the pottery and glassware industries if these groups are to contribute their share to high levels of employment?

One method of analyzing this situation is to study the past relationships of pottery and glassware sales to the gross national product. As the accompanying chart indicates, these have been close over a period of years. On the basis of these close relationships and assuming a post-war gross national product of $165 billion, we should expect the retail sales volume of table and kitchen pottery and glassware to soar to $313 million—an increase of 39 percent over the estimated 1941 volume.

This article, which points out some of the factors which must be considered in appraising the post-war market, is intended to serve as a stimulant to post-war thinking on the part of pottery and glassware producers and dealers and to encourage the development in detail of plans for peacetime. To assist those interested in the subject, the Bureau has prepared a booklet (available on request to the Specialties Unit) which contains more detailed information on the pottery and glassware business.

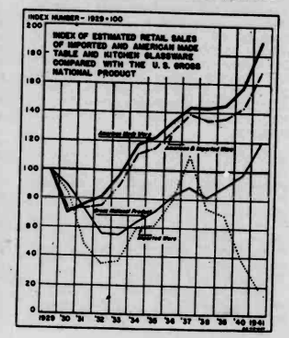
On the basis of their past relationships to the gross national product, we estimate that sales of table and kitchen pottery in a post-war period of high levels of employment might reach in the neighborhood of $196 million, or 51 percent more than in 1941. In appraising the validity of these figures perhaps we should first ask if this volume is reasonable from a consumption standpoint.

In normal times, probably 30 percent of the pottery sold in the United States is used in hotels, restaurants, dining cars, and other commercial eating establishments; the remainder is sold to household users. If this ratio is maintained in the post-war period, sales to commercial users would have to increase from $39 million in 1941 to $59 million in the post-war period, while household sales would have to increase from $90 million in 1941 to $137 million. Breaking down the household figures, we obtain an indicated annual family expenditure for pottery of $3.43 in the post-war era, compared with $2.43 in 1941 (assuming 37 million families in 1941 and 40 million families in the post-war period); in other words, the average American family would have to spend about a dollar a year more for pottery. This increment might be realized by expanding the volume of ware sold or by enlarging the market for quality ware.

Supply Situation

Next, we might turn to the supply angle of this problem and discuss the industry's ability to produce such a volume. We know that the 1941 output was reached only after straining the pottery industry's productive facilities to the maximum. This suggests a study of the problems involved in expanding manufacturing facilities, obtaining sufficient skilled labor, and providing necessary raw materials.

It should be remembered, however, that a sizable portion of the 1941 activity in our domestic pottery industry was due to the sharp decline in imports, which represented 14 percent of the total in that year as compared with a normal ratio of close to 30 percent. This leads to consideration of the international complexion of the pottery trade, which has always been a matter of real concern to this industry. If we assume that the 1939 ratio of imports to consumption (20 percent) is maintained, the American pottery industry's portion of the post-war market might total $156 million, compared with about $168 million at the 1941 ratio of imports to consumption (14 percent).



The likelihood of the demand reaching our target figure is another point to discuss. This involves, of course, an appraisal of the reasonableness of our basic assumption that a high level of employment will be achieved in the post-war period. One of the best answers to this was provided in a recent discussion with some business people who replied that American business must see to it that this high level of employment is obtained.

Trend of Pottery Sales

The trend in pottery sales has always followed very closely the trend in general business activity in the country, so if the general business activity increases it is up to pottery manufacturers and dealers to see that they get their share of the consumer dollars which will be available; at the same time, they will be contributing their share to achieving the post-war gross national product. Again, we must stress the fact that the portion of the total sales which will come from American potteries is dependent to a considerable extent on the trend in imports. It is true that this, in turn, depends on our tariff policies but careful study should be made of the other factors contributing to foreign competition, such as a popular notion that imported is better than domestic ware. American pottery manufacturers might consider a more vigorous promotional campaign in behalf of their ware.

No attempt can be made here to discuss the various technological developments which might occur in the post-war period. Many industries have devised new techniques, new materials, and new uses for materials which may or may not affect the pottery situation. New uses may be developed for pottery, while new products may be offered on the market to compete in normal pottery fields. Furthermore, the entire question of potential export markets has not been mentioned—a subject which merits great attention as American pottery becomes more exportable owing to lower production costs achieved through mechanization of manufacture.

Glassware

Sales of table and kitchen glassware in a post-war period of high levels of employment may reach $117 million, or 22 percent more than 1941's record volume. This estimate is based on the assumption that the high rate of employment will generate a gross national product of $165 billion (38 percent more than in 1941) and that the glassware industry obtains the same proportion of the Nation's total income which it did in pre-war years.

Total sales volume of $117 million does not seem unreasonable from a consumption standpoint. Normally, about 40 percent of the glassware sold in the United States is used in commercial eating and drinking establishments, such as hotels, restaurants, bars, soda fountains, and dining cars; the balance is for household use. If we assume that this ratio is maintained, sales of glassware for commercial use would have to increase about $9 million and those for household purposes should expand $12 million.

It is difficult to appraise future trends in the restaurant and hotel trade but, as "Markets After the War" indicates, if American people spend the same proportion of their incomes on transportation and recreation in the post-war period that they spent in the pre-war period, travel would increase about 77 percent and 42 percent more money would be spent on recreation. Obviously, these percentages are the result of pure mechanical computations but they indicate a fairly reasonable trend. Surely we can say that if people have more money they will spend more on travel and recreation, which will mean more eating out and, therefore, probably more glassware use.

A $12-million expansion in the household glassware market seems quite possible; boiled down to a family problem it means that the average annual family expenditure in the post-war era would increase from $1.56 to $1.76, or 20 cents more per year. These figures seem to indicate the reasonableness of this post-war goal; surely they at least merit careful analysis and study on the part of manufacturers and dealers.

Supply Problem Also Involved

As in the case of pottery, it seems that we will face a supply problem in the glassware industry if the demand reaches these indicated volumes, since in 1941 glassware manufacturers operated at very close to capacity. In any event, careful study should be given problems of expanding production facilities, training workers, and assuring a sufficient supply of raw materials.

From the over-all standpoint, the glassware industry does not face as serious a problem in foreign competition as the pottery industry does. In the pre-war period sales of imported ware amounted to from 6 to 9 percent of the total consumption of all glassware; by 1941, largely owing to the European War, this ratio had dropped to 1 percent. This situation does not obtain, however, in all types of glassware, for while manufacturers of machine-made products experienced practically no foreign competition in pre-war years, the hand-made industry had a real problem on its hands.

In a recent study of this Bureau, "Economic Survey of the Hand-Made Table Glassware Industry," information was developed which indicated that imports of *hand-made* table glassware represented 22 percent of the total (hand-blown and hand-pressed) sales in 1937, and 19 percent in 1938. Actually, this problem was almost entirely confined to the *hand-blown* glassware field since most of the imported ware was of this type. Probably 30 percent of the total sales of hand-blown glassware prior to the European War consisted of foreign-made articles. It is important, therefore, that any study of the post-war glassware market include a careful analysis of the international glass situation. If we assume that the 1939 ratio of imports to consumption will be maintained in the post-war period, sales of American-made glassware at our target level would amount to $110 million rather than to $115 million based on the 1941 ratio of imports to total sales; in other words, sales of American hand-made glassware producers might be $5 million less.

No one can say with assurance that we will achieve high levels of employment in the post-war period and that we can, therefore, use that yardstick in analyzing post-war markets for particular products, such as glassware. But if glass manufacturers and dealers share our acceptance of the likelihood of high post-war employment levels they should be heartened by the realization that over a period of years American consumers have been spending an increasing portion of their incomes on glassware items. If the industry can maintain its position in this regard, it should be able to face the future unafraid. The detailed implications of these interrelations of high levels of employment and glassware trends merit careful study.

In this brief discussion, we have not mentioned the export-market potentialities, which may be quite large, nor have we discussed wartime technological developments in the glass industry which may improve its competitive position with similar products made of other materials, nor have we attempted to review the new materials and products which will compete with glass for the post-war consumer's dollar. All of these subjects must be included in any detailed survey of the post-war glassware situation.

As was stated in the beginning, this review of the pottery and glassware situation is intended to stimulate post-war thinking and planning on the part of pottery and glassware producers and dealers so that they may contribute their share toward achieving a common goal of high levels of employment in the post-war period. The implications of such a situation are obviously encouraging, suggesting potential demands far in excess of our past experiences. All of us concerned with this problem, however, must constantly bear in mind that there is nothing automatic or inevitable about this post-war period. As "Markets After the War" warns, "This is a challenge to business enterprise. Can the whole gamut of goods and services be made so attractive and can they be sold so effectively that the consumer will be willing to work about the same number of hours as in 1940 to obtain them? This calls for better market analysis, more sales research, more imagination and ingenuity in developing new products or new markets for old ones, and more strenuous efforts to improve promotion and distribution methods."

Heating Equipment Post-War Markets

By J. V. McCarthy and W. B. Call

Specialties Unit, Bureau of Foreign and Domestic Commerce

"MARKETS After the War, An Approach to Their Analysis," recently published by the Department of Commerce, indicates that, in a post-war year of full employment, the gross national product (the total expenditures for all goods and services) might reach $165 billion at the 1942 general price level. A gross national product of this extent would represent a 39-percent increase over the 1941 total of $119 billion, the best year for which data are available. What effect would this high volume of goods and services have on the heating equipment industry producing coal-, wood-, gas-, and oil-heating stoves, ranges, room and water heaters, and other types of space-heating equipment; and oil burners, boilers, radiators, and other types of central heating equipment? What level of activity should the heating equipment industry aim for to obtain its share of post-war business and to provide its share of post-war jobs?

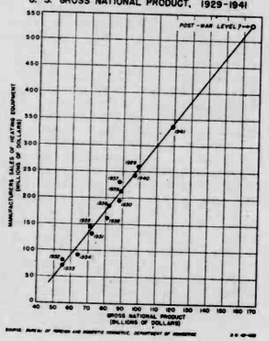
It should be noted that in table 3 of "Markets After the War," heating and cooking apparatus are considered together, while central heating equipment is included under construction. In this article, cooking apparatus has been omitted from consideration and central heating equipment has been included. Also such factors as transportation costs and mark-ups, which are included in the dollar projections in "Markets After the War," have not been considered in this article.

530 Million Dollar Market

In the past, there has been a close relationship between manufacturers' sales of heating apparatus and the gross national product, as the accompanying chart indicates. If these relationships continue, the heating apparatus industry's share of the gross national product of $165 billion assumed for a post-war year of full employment might reach $530 million, an increase of 58 percent over the estimated 1941 volume. How does this purely statistical estimate based on past relationships stand up under scrutiny? What are the other considerations?

From the consumption angle the target figure for the heating equipment industry does not seem unreasonable in the light of possible consumer demand. It has been estimated that there will be an immediate post-war need for a minimum of 4 to 4½ million dwelling units, 3 million or more being single-family structures. In addition, according to a recent survey by the United States Chamber of Commerce, at least 416 thousand families intend to install new heating equipment within 6 months after the war. Admitting that any average is subject to considerable variation, let us assume $150 as the manufacturer's selling price for the heating equipment to be installed in these dwelling units. The resultant indicated demand for heating equipment is $700 million, apparently more than substantiating the reasonableness of the production goal suggested above. Whether such a demand will be sustained over a period of time depends to a large extent on the maintenance of full employment in all industries and the production and sales ingenuity and energy of heating equipment manufacturers and dealers. Certainly, careful analysis and planning are merited in an effort to support such a level of activity.

MANUFACTURERS SALES OF DOMESTIC HEATING EQUIPMENT COMPARED WITH THE U. S. GROSS NATIONAL PRODUCT, 1929-1941



Supply Problem May Arise

If the demand for heating equipment reaches the indicated volume, a supply problem will possibly develop. As shown in the accompanying chart, the closest approach to the target figure occurred in 1941, when heating equipment production totaled $336 million. On the basis of recent reports on plant operations by a representative group of manufacturers formerly producing all types of heating and cooking equipment and apparatus, it is estimated that the industry is currently producing at the rate of 170 percent of 1939 dollar production. Assuming that this rate would apply to all heating equipment manufacturers, the present level of production is approximately $360 million per year, far below the annual post-war objective of $530 million. Will the industry be able to increase its present output by almost 50 percent in order to produce at the target level? In any event, the problems of expanding production facilities, training workers, and assuring sufficient supplies of raw materials should be given careful study.

Is it possible, though, that present production facilities of the industry may be augmented in the post-war period? Many plants that have been expanded or created for the production of munitions and other war supplies will be available for the manufacture of peacetime products. In their desire to use these facilities to the maximum, many manufacturers will enter new fields of endeavor and the potentialities of the post-war demand for heating apparatus may lure some of them into the manufacture of this type of product.

Technological Advances

What will post-war heating equipment be like? Although no attempt can be made here to evaluate developments and technological improvements, such unforeseeables must be considered. Undoubtedly, the desire on the part of home owners for greater comfort and convenience will insure a larger market than heretofore for automatic heating as well as for combination air-conditioning and heating systems. Radiation panel heating and chimney heating are other developments that bear watching, and in the space-heating field much consideration has been given to the development of ceramic and glass stoves. Many radical ideas and designs possibly will receive consumer acceptance; however, the consensus of the trade indicates that the sale of conventional pre-war units, with modest improvements, will continue in substantial volume after the war.

Prefabricated housing must not be overlooked. Prefabricated homes should appeal to those desiring low-cost single-family dwellings—the type of dwelling for which it is believed there will be the greatest demand in the post-war period. The continued advancement of the prefabricated housing industry will present many questions to the heating equipment manufacturer, not the least of which will be the question of who will make the necessary heating equipment for these homes—the prefabricator or the heating equipment manufacturer. Prefabricated houses may require small, compact, standardized, and inexpensive heating units, thereby reducing the manufacturers' gross and making our production goal more difficult to obtain. On the other hand, prefabrication might have the effect of enlarging the market.

Other Affecting Factors

Recently the adequacy of United States oil reserves has been the subject of much discussion. It has been contended that the decline in the discovery of new domestic oil fields will necessitate some limitation on the use of petroleum in the post-war period. Obviously, this is not the place to discuss the many sides to this question. Nevertheless, the possibility of a scarcity of petroleum in the post-war period, and its attendant effect on the oil-heating equipment manufacturing industry, should not be ignored by a manufacturer of such equipment seeking to analyze his post-war markets.

The above factors, and others not mentioned here, pose problems the implications of which are far-reaching in their effect on the post-war market for heating equipment. Clear-cut conclusions seem impossible, but individual manufacturers must make every effort to arrive at a logical evaluation of the effects of these factors on their post-war markets if the production goal is to be achieved.

Because export sales are not included in the projections set forth in "Markets After the War," no attempt was made to include such sales in this estimate of the heating manufacturers' share of the post-war gross national product of $165 billion. It is possible, however, that this trade may be quite large in view of the contemplated rehabilitation programs. However, because most European countries meet their normal requirements for heating apparatus from local production, re-establishment of the heating equipment manufacturing industry in those countries will probably result in a regressive demand for the imported product. No mention has been made, either, of the Latin American market which, despite its limitations, deserves careful study.

Furthermore, the place of the Federal Government in the post-war housing picture has not been considered. Will the Federal Government continue to be an important factor in the provision of new residential construction? When hostilities cease, what disposition will be made of the heating equipment in the many temporary military and civilian dwellings which have been erected by the Government? These and other questions must be answered.

It is hoped that this brief review will stimulate the post-war thinking and planning of heating equipment manufacturers and dealers so that they may aim for their share of the post-war business and contribute their share of the post-war jobs. While there is no certainty that the demand will reach the target figure of $530 million, that goal is worth striving for. The job requires foresight, sales research, market analysis, ingenuity, and, above all, a "can do" attitude. Each manufacturer should plan now in order to be in a position to make the most of his opportunities. To aid him the Specialties Unit is preparing a booklet, containing detailed information on the heating equipment industry, which will be available on request.

Museum Goes to War

A gray-iron foundry housed in Chicago's Museum of Science and Industry has converted its production facilities to the war effort. Originally developed and established to demonstrate to the public and to school groups the processes involved in producing castings, it will now turn out many small parts essential in various war plants.

Museum visitors may still observe operation of the foundry, in spite of wartime production schedules, and frequent demonstrations will be made by staff members.

Plywood Replaces Metal

An aircraft company is using plywood trays at its plant to carry various parts. These trays were formerly made of heavy metal. The plywood containers, even when loaded, weigh less than those made of steel, and were introduced for the benefit of women employees.

Post-War Works Program

The public works committee of Atlanta's city council has approved a post-war program involving more than 15 million dollars for construction of streets, roadways, and bridges. A subcommittee has been created to enlist the aid of Federal, State, and county governments in furthering the projects.

Post-War Market for Hand Tools

By William B. Call

DIVISION OF INDUSTRIAL ECONOMY, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

"Markets After the War," a recent publication of the Department of Commerce, presents a "hypothetical projection of expenditures by commodity groups based on past relationships to the gross national product." This gross national product is defined as "the total (national) output of goods and services, excluding sales to another enterprise for further fabrication or resale, but including sales to another enterprise for capital investment." If everyone in the United States wanting to work is employed in the post-war year 1946, it is estimated that the gross national product will be $165 billion at the 1942 price level.

Assuming that expenditures by commodity groups will continue in the same relationship to the gross national product as in the past, $353 million may be expended by ultimate consumers for the purchase of tools. Included are carpenters' tools such as planes, braces and woodworking bits, saws, and wood chisels; industrial and mechanics' hand tools such as metalworking files, rasps, and chisels, screw drivers, pliers, wrenches, and precision measuring tools; agricultural hand tools such as forks, hoes, rakes and shovels; and other miscellaneous hand tools.

A manufacturer, in attempting to analyze his potential post-war sales under conditions of full employment, must remember that this target figure of $353 million represents domestic expenditures at the consumer level. Transportation costs, wholesale and retail mark-ups, and the cost of imported tools have been included, while the value of tools that would be exported have been excluded. It is estimated that the $353 million to be expended by domestic consumers would represent a manufacturers' sales volume of $247 million.

Because of the mechanical statistical method used to develop the projection of expenditures for tools, many important factors were not considered. It is the purpose of this article to point out some of the more important variables to be kept in mind by a tools manufacturer in any attempted post-war sales analysis.

How does a projected annual domestic sales volume of $247 million compare with past experience of the industry? Has the industry sufficient capacity to produce this amount? Estimated domestic sales of hand tools during selected years are shown in the table below:

It is readily recognizable that during the years preceding the war the industry has never enjoyed a peacetime domestic

ESTIMATED DOMESTIC SALES OF HAND TOOLS[1]

Year	Industrial and mechanics' hand tools	Agricultural hand tools	Carpenters' hand tools	Miscellaneous hand tools	Total
1929	$73,600,000	$12,800,000	$15,300,000	$34,300,000	$135,800,000
1931	31,800,000	8,100,000	7,200,000	14,700,000	61,800,000
1933	30,200,000	700,000	7,700,000	19,300,000	57,900,000
1935	40,200,000	7,400,000	8,000,000	22,400,000	78,000,000
1937	65,200,000	14,600,000	11,600,000	23,600,000	115,000,000
1939	66,100,000	12,600,000	10,000,000	17,300,000	106,200,000

[1] Manufacturers' selling price.

Source: Bureau of Foreign and Domestic Commerce.

sales volume of $247 million. However, the war has influenced the production of hand tools to the extent that practically all hand tools are in demand for war or war-related use. Although production is currently well above pre-war levels, there is room for substantial doubt that domestic sales have reached a yearly rate of $247 million.

Tools Have One Advantage

The tools industry will have one important advantage over other groups vying for consumer dollars in the immediate post-war years in that it does not face the problems of reconversion. Practically all hand tools are in demand for war or related use, and in the case of some, such as mechanics' hand tools, manufacturers have actually expanded their facilities. It is true that some companies have added to their activities the manufacture of other war materials, but tool production has not been curtailed. From the production angle, therefore, a hypothetical demand of $247 million can be considered in the light of existing capacity. The previous record, set in 1929, was $135 milnon. Have facilities been increased enough to make up the difference? If not, what problems would be involved to achieve such a goal?

What about the consumption of tools in the post-war period? The projection of expenditures in "Markets After the War" (table III) indicates that sales of foods may increase 62 percent, private construction 203 percent and public construction 43 percent above 1940 levels. What effect would these changes have on the demand for agricultural hand tools, carpenters' tools, and the like? Furthermore, what effect would an over-all increase of 70 percent in industrial activity have on the entire tool market.

What are the limiting factors? When hostilities cease, what disposition will be made of the hand tools being purchased by the armed services and the Lend-Lease Administration? The redistribution of such accumulated war stocks is an important problem because immediate post-war production of tools may be affected by the quantity thus made available. Involved are many variables, such as the rate of demobilization, the use of these tools for reconstruction work in Europe, and the Government's policy as to the liquidation of war stocks.. Although the effect of such redistribution cannot be foreseen immediately, we must recognize that the liquidation of accumulated war stocks may be a disturbing factor and may tend to influence immediate post-war sales.

Large Demand Forecast

There is no doubt that in the immediate post-war period there will be a considerable demand for tools to replenish depleted inventories and for use by reappearing civilian industries. On the other hand, there will be a cessation of large purchases by the services and war plants. Generally speaking, mechanics and carpenters are probably well supplied with tools as a result of being employed in war work and will not need large quantities in the immediate post-war period.

Because the demand for agricultural hand tools depends upon agricultural production, post-war policies as to supplying Europe with food may affect the demand for such tools. However, as soon as initial demands are satisfied, will the replacement demand be sufficient to support a domestic sales value of $247 million?

The hand-tool industry has not developed far-reaching technological improvements or changes other than certain minor changes in processes; however, developments in other industries are important. Plastics are becoming more important for a variety of uses. How will the development of this industry affect the demand for tools? Will new and different tools be required? Will existing kinds of tools be needed in larger or smaller quantities as a result of the development of this industry or will the over-all demand be reduced?

Prefabricated housing was just getting a start when the war began. In many respects the war provided an impetus, yet the restrictions on war construction have halted normal development. In any event, the post-war development of this industry will have a bearing on the demand for tools. Extensive consumer acceptance of prefabricated houses might affect the demand for carpenters' tools. Will the result be a decrease in the quantity of carpenters' tools required or a shift in demand—from the carpenters to the builders of prefabricated housing? Other recent developments that bear watching include electronics, the helicopter and the "family" airplane, and synthetic rubber, but the effects these developments will have on the over-all demand for tools are difficult to foresee.

Although the export demand for tools was not considered in "Markets After the War" because of the nature of that study, this demand should not be ignored by a manufacturer seeking to analyze his post-war markets. It is estimated that there is considerable deferred demand in many countries and that the reestablishment of European industry will require large quantities of tools. In many countries, particularly in Latin America, mechanization is being greatly accelerated. What effect will these factors have on the demand for our tools? How soon will European producers be able to compete in international markets?

The preceding discussion has pointed out some of the more basic factors to be considered in a post-war market analysis of the hand-tool industry. Projected annual domestic tool sales of $247 million—$353 million at consumer level—under conditions of full employment, must be considered with these factors in mind. However, one thing is certain—tool manufacturers should make every attempt to see that full employment is attained if they are to enjoy its resultant benefits.

REVENUES AND OUTLAYS HIT NEW HIGHS

Revenues and expenditures of the 48 States both established new highs in the 1942 fiscal year, according to the preliminary summary of finances of State governments issued by the Bureau of the Census.

The total State general-government revenues were $6.1 billion, compared with $5.6 billion in 1941. More than 81 percent of this revenue came from taxes, of which the largest yielders continued to be the sales tax and gross levies and unemployment compensation taxes. Revenue increases were shown in all types of taxes that reflected expanded business activity. Aid from other governments, largely Federal grants, accounted for nearly $786.6 million, and it, also, showed an increase over 1941.

Expenditures were $5.8 billions, only $1.9 billion of which was for the direct operation of State activities. State aid to local government units required $1.8 billion, and capital outlays, debt service, and transfers, primarily to unemployment compensation trust funds, accounted for the remainder.

Capital outlays for States were about the same as in 1941 but all other categories of expenditures increased. The functions which showed the greatest increases were highways and public welfare.

The States accomplished a 6-percent reduction in gross debt in 1942, the debt being $3.3 billions of which 76 percent was in the form of general obligation bonds. Sinking-fund and other long-term debt offsets amounted to 15 percent of the gross debt, leaving a net long-term debt of $2.6 billion.

A total of 51 public service enterprises in 31 States contributed $73 million to the general revenues of the States. The alcoholic-beverage monopoly systems in 16 States were by far the most important of these activities, with a combined net income of $84 million, derived from net sales of $368 million.

The Census summary includes a breakdown of revenues, expenditures, and debts by type of fund for each State; revenues and expenditures of the general-government of each State; revenues by general funds; expenditures by funds; functionalized expenditures, by States; debt service expenditures, by States; gross and net debt of each State at the end of the fiscal year; character of obligations, by States, and detailed income and expenses of alcoholic-beverage monopoly systems, by States.

The report pointed out that the figures did not reflect the full impact of the war on State government finances because many of the States closed their fiscal years on June 30.

Appraisal of Post-War Radio Market

By E. J. Dotgen and Lawrence D. Batson
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"Markets After the War" in its hypothetical break-down, by commodity groups, of the distribution of an assumed total expenditure for all goods and services of 165 billion dollars in a post-war year, indicated that approximately a billion dollars — an increase of 165% over the 1940 volume — might be spent for radio apparatus and phonographs. This includes receiving sets of all kinds, phonographs, radio-phonograph combinations, electric record players, tubes and replacement parts, needles, storage batteries, records, and blanks. This article discusses some of the factors that were not considered because of the purely mechanical nature of the projection.

The figures given in the table below pertain to the entire radio-phonograph industry. But to facilitate discussion, this article considers only the home radio field which constituted 80% of the combined radio and phonograph industry total in 1940.

If the hypothetical statistical projection of "Markets After the War" is a true indication of the post-war market, we could expect an annual expenditure for household radios in the post-war era of approximately 880 million dollars, 165% of the 1940 estimated volume of 545 million. Assuming further that the average retail price of a radio set remains at $35 (the 1935-41 average), 25 million radio sets may be sold annually in the United States in the post-war period. How may these figures be tested?

Primary and Secondary Markets

First, how would this volume compare with previous experience in the industry? Of 36 million families in the United States in 1942, approximately 30 million owned about 60 million radio sets. Industry estimates indicate that 50% of these families owned one set each, or a total of 15 million sets, and that the remaining 15 million families owned 45 million sets, and of these, probably 15 million are first or primary sets and 30 million, second or additional sets. In other words, there were approximately 30 million first or primary sets and an equal number of second or additional sets in use in 1942.

With reference to the market for the primary or first set, assuming an average life span of approximately 7 years, a very high percentage of the pre-war sets in this class may be considered by their owners as obsolete by 1946. Can we estimate, therefore, that there will be an immediate market in 1946 for 30 million primary sets, which will mean a new set for each radio family in the United States? Looking ahead to 1947 and subsequent years of high levels of employment, (and remembering that annual sales have never exceeded 11 million sets) can we assume a continuation of this new high volume of business?

Will High Volume Continue?

In seeking the answer to this question, we must consider, among other factors, the market for the second or additional set, which represented 30 million units in 1942. To what extent and how soon will second or additional sets be replaced? What effect would the sale of 30 million sets in one year have on the number of second or additional sets in use? How many families will retain the first or primary set used during the war period to serve as a second or additional set after purchase of this new post-war set? All these statistical factors must be applied to our original figure of 30 million sets to determine its validity as a starting point for discussion of the radio market in the post-war period.

Consumer Expenditures for Radios and Allied Products Compared with Total Expenditures
(Millions of dollars)

Year	Expenditures for radio apparatus and phonographs	Total expenditures	Percentage ratio of expenditures for radio-phonograph to total expenditures
1929	678.1	99,400.0	0.68
1930	613.4	88,200.0	0.92
1931	475.5	72,100.0	0.66
1932	225.4	56,400.0	0.41
1933	184.9	54,800.0	0.34
1934	236.5	63,800.0	0.37
1935	282.4	70,800.0	0.40
1936	358.7	81,700.0	0.44
1937	366.3	87,700.0	0.42
1938	310.4	80,600.0	0.39
1939	377.8	88,600.0	0.43
1940	415.6	97,000.0	0.43
1941	500.0	119,000.0	0.42
1946	1,100.0	165,000.0	0.67

Source: "Markets After the War."

The foregoing is based on the continuation of the assumed average retail price of $35 per set. But since "Markets After the War" discusses the dollar volume of business that may be obtained by an industry, with its resulting effect on employment and pay rolls, rather than the number of units any particular industry produces, careful study should be made of the changes in prices paid for radios.

Will the average price per set be higher or lower? What knowledge have we now, concerning the technological changes taking place in the industry, that will permit us a glimpse of this phase of the industry in the future? Will radio production be changed so radically that prices will be cut in half resulting in an average retail price of around $15 or $20 and necessitating a volume of 60 million sets per year, or will there be emphasis on larger, higher-quality sets which will increase the unit price and thereby reduce this hypothetical annual quota of 30 million units which we are using for the purpose of this discussion? For example, can we assume that in the post-war period frequency-modulation will be a "must" among radio users?

Frequency-Modulation Enters Picture

To some radio manufacturers questions of this type will be considered elementary since they are convinced that the benefits of frequency-modulation are so great it will "have to be." And they reason that since the production of this type of set involves more man-hours and materials the cost will be higher. They point out that the lowest retail price of a complete frequency-modulation set in 1942 was approximately $60, or almost double the average price paid for radio sets. If a market of this type is developed, annual sales of 15 million sets would achieve the hypothetical goal of $80 million dollars in retail sales of home radios.

The possibilities of frequency-modulation raise other interesting questions, including the future of the market for the lowest-price set ($10 and under) and the possibility that many owners of high-quality sets may purchase FM convertors for use in conjunction with these sets. There is also the problem of setting up and staffing a large number of radio stations to provide frequency-modulation broadcasts, because of the limited range of such stations, compared with present amplitude modulation stations.

The implications of television and its accompanying developments have not even been mentioned here because of limitations on space; certainly that development alone requires intensive and elaborate investigation by anyone attempting to appraise the future of radio.

The following table has been prepared to provide background statistical data on this subject.

The foregoing table shows the status of the radio industry in 1942 only insofar as civilian radio production is concerned and is not a complete picture for that year. And since the industry has converted 100% to war production it will be faced with the important problems of post-war reconversion.

Generally, war demands on the parts industry have required no major changes in methods or design and peacetime products are still being made in identical form or modified

Home Radios and Phonograph Combinations —
Production, Sales, Average Prices, and Number in Use

Year	Production (a)			Retail sales (Industry estimates) (b)			Use statistics (b) (000 omitted)	
	Thousands of sets	Factory value (c) ($1,000)	Average price	Thousands of sets	Value ($1,000)	Average price	Number of sets	Families owning sets
1922				100	$5,000	$50	400	60
1923	414	$13,995	(d)	250	15,000	60	1,500	1,000
1924				1,500	100,000	67	3,000	2,500
1925	2,293	89,145	(d)	2,000	165,000	83	4,000	3,500
1926				1,750	200,000	115	5,000	5,000
1927	1,938	95,162	(d)	1,350	168,750	125	6,600	6,500
1928				3,281	388,000	118	8,600	7,500
1929	4,938	249,602	$50.50	4,435	591,543	134	10,500	9,000
1930				3,793	206,100	54	13,000	12,049
1931	3,647	113,214	31.00	3,312	219,060	66	15,000	14,000
1932				2,477	117,710	47	18,000	16,810
1933	2,788	53,837	19.30	3,062	102,301	33	22,000	20,402
1934				3,304	122,880	37	28,000	21,456
1935	4,398	103,583	23.60	4,375	216,590	49	30,600	22,869
1936				6,746	394,819	59	33,000	24,600
1937	5,844	131,526	22.40	7,631	303,680	40	37,600	26,429
1938				5,823	210,000	36	40,800	27,500
1939	8,735	129,767	14.80	9,000	289,000	32	45,200	28,700
1940				10,900	345,000	32	50,100	29,400
1941				11,100	420,000	38	56,000	30,300
1942				3,550	124,250	35	59,340	30,800

(a) Census of Manufactures.
(b) Industry estimates principally from "Radio Retailing," "Radio Today," and "Broadcasting."
Principal exception: 1930 number of radio families from Census of Population.
(c) Value only of the sets reported by number. Small additional margin where number was not given.
(d) Totals include considerable proportion of sets not for home use.

only to the extent necessary to circumvent materials shortages. However, this industry has expanded greatly during the past 2 years, frequently by the comparatively simple process of taking over personnel and factory space temporarily idle owing to scarcity of materials or the unessential nature of the goods formerly produced.

A major factor in reconversion will be the continued availability of these plants and workers. Will radio manufacturers be able to retain them or must they develop new facilities and train new workers? In the assembly industry reconversion may be largely a matter of providing a short training period for radio assembly operations, for workers now producing items of military equipment.

Availability of materials necessary for the manufacture of radios presents another important post-war problem. In what quantity will these necessary materials immediately be available? The answer provides a basis for determining whether or not the radio industry will be in a less difficult position at the end of the war than most other industries having the same general markets.

What About Foreign Competition?

Many other important considerations must receive careful study as we look into the post-war radio situation. Not the least are questions regarding foreign industries and markets. In such a study attention must be directed not only to past export experience and the potentials of the future, but also to the possibilities of competition from abroad. Much of this will be intimately tied up with the expansion of radio industries in countries that have been producers in the past as well as with the establishment of radio factories in countries which formerly imported all their requirements. What effect will these developments have on our domestic production and sales?

These puzzling questions complicate an analysis of the post-war situation. But one of the most interesting results of thinking about them is the feeling that an apparently too optimistic domestic annual sales goal of 880 million dollars may be not only reached but exceeded in a period of sustained high levels of employment.

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CHROME-TREATING PROCESS ON CUTTING TOOLS PROVES VALUABLE DISCOVERY

Another scientific discovery, designed for pursuits of peace, has been enlisted to assist American factories increase their production to speed the defeat of the Axis powers.

This new contribution to war production efficiency, made by an engineer of the Crowell-Collier Publishing Co., consists of a simple process — a way to chrome plate and treat the knife edge of a cutting tool that makes the chrome an integral part of the steel and increases the life of the tool from 100% to 2,000%.

The chrome plate allows the instrument to be sharpened repeatedly with no loss in effectiveness. With the crucial tool-steel shortage, the scarcity of toolmakers, and the increased production schedules made necessary by the war, the importance of this discovery is obvious.

Considerable Research Involved

The chrome plating process was evolved after considerable research and was first used in the Crowell-Collier publishing plant in Springfield, Ohio. It was developed in connection with a gravure-printing process in which is used ink so volatile that it must be encased in a sealed fountain to prevent drying. As this ink is pumped from the fountain to the copper cylinder (etched with as many as 22,500 depressions per square inch), the chrome-treated knife scrapes off the excess at high speed, leaving the depth of ink in the depressions undisturbed.

The entire operation — from ink to cylinder to printed paper — takes only fifteen-hundredths of a second. And, over the etched surface, this speed is maintained 24 hours a day for 5 days a week, at the end of which time the knife edge is still in good condition. The chrome-treating process was later applied, with remarkable success, to inexpensive cutting tools.

Free Use to War Producers

Through the courtesy of the president of the Crowell-Collier Publishing Co., who offered a royalty-free license to use of the process for the duration of the war, the process is now being employed by a number of leading war producers. The owning concern not only has granted free use of the discovery for war purposes but, upon request and without charge, is treating and testing sample tools on behalf of manufacturers who have shown interest in it.

More than 1,000 manufacturers responded to the publishing company's offer by asking for information and demonstrations and a considerable number of the larger producers have adopted the process and are now processing and treating their own cutting tools.

Applicable to Many Items

The process can be applied to many metallic items such as gears, cams, and drills. One user reported that a treated drill made 8,000 holes in phenolic sheet without having to be reground, whereas an ordinary drill needed regrinding after 4,000 holes. In a test by the Pittsburgh Testing Laboratory, a treated 7/16" drill pierced a 1-inch armor plate in slightly more than 42 seconds.

Will U. S. Watches "Tick" in Peace?

By Donald S. Parris

Specialties Unit, Bureau of Foreign and Domestic Commerce

THE DATA on clocks and watches presented in "Markets After the War," an analysis recently issued by the Bureau of Foreign and Domestic Commerce, are for the retail sales of the products of two industries—the American and the Swiss jeweled watch industry and the American clock industry. For the purposes of this article only jeweled watches (a product of the jeweled watch industry) and nonjeweled watches (a product of the clock industry) will be considered. The deduction of clock sales results in an estimated sales figure of $189,200,000 for watches in 1940, or 92 percent of the combined estimate for that year in "Markets After the War."

The retail sales figures presented in table I of "Markets After the War," and representing trends in the given years, were prepared as follows: To the United States manufacturers' sales volume were added the transportation expense and wholesale and retail mark-up. To the value of imported timepieces were added transportation costs, duties, casing and timing expenses, presentation boxes and attachments, and wholesale and retail mark-up. United States exports were subtracted. Similarly, from the hypothetical figure for 1946 for clocks and watches in table III of the publication, an estimate of $330,000,000 for watches alone can be arrived at, and this represents a conservative assumption with respect to the sales potential in that year.

Swiss Market Important

It must be remembered that a large number of imported watches are included in the statistics given in tables I and II. Therefore, to assay the prospects of the watch industry in this country, data showing past relationships between imported and domestic watches must also be considered. The Swiss share of the United States retail market for jeweled watches has varied from 40 to 65 percent in the 15 years ending with 1941.

The nonjeweled watch, as produced in the United States, is made by mass-production techniques in which the labor cost is not an overly important factor; for that reason the Swiss and Germans have been in the past, and probably will be in the future, at a competitive disadvantage. The production of a high-quality jeweled watch, however, requires the use of a large amount of skilled labor. For instance, in 1940, the payment for labor represented approximately 75 percent of the cost of producing a watch movement in the United States. Obviously, the nation with the lower wage scale has a competitive advantage. The Swiss, with lower labor costs in peacetime, have this advantage, which cannot readily be overcome except by means of an import duty. It is probable that, with no change in duty, retail sales of Swiss watches will continue to represent a substantial proportion of United States sales volume in the post-war period.

The need for a timepiece can be filled by a nonjeweled clock-watch at a retail cost of $1.50, or by a 21-jewel watch at $150. In the post-war period, arbitrarily fixed as beginning with 1946, if we assume full employment, persons who favored the purchase of inexpensive watches in 1940 will probably be willing to increase their expenditures for timepieces. A watch of greater accuracy, with a longer life, and having "eye-appeal" will be a more likely choice under such conditions. Not only will the number of watches purchased undoubtedly increase, but the average retail price of jeweled watches might be expected to rise. In 1941, the average retail price of jeweled watches sold in this country was estimated to be about $34. In 1946, a combination of higher unit values and an increase in number of customers could easily result in a 74-percent increase over 1940 in dollar volume of sales.

A watch may serve in the dual capacity of essential utilitarian article and luxury product. A watch of any kind will indicate the time but a nonjeweled watch has a comparatively short life expectancy because of greater wear on the moving parts. In a jeweled watch the jewels act as bearings to reduce the friction in the faster moving parts. The reduction in friction and the other features of the jeweled watch make it generally a more desirable timekeeper.

An increase in mobility of the population after the war would cause a greater demand for fine watches. Air-line users as well as pilots and crews will need dependable timepieces. With increased employment the demand for fine watches will expand.

If the post-war period is characterized by a high level of expenditures, the sale of nonjeweled watches also will increase over 1940, both numerically and dollar-wise. More children and youths will be customers for such watches and former nonowners of timepieces will purchase them. It is estimated that in 1941 a nonjeweled watch was purchased by 1 out of every 10 persons in the United States. As an incentive to increase this ratio the industry may offer nonjeweled watches with that very desirable feature—the sweep-second hand. Purchasers may pay 25 percent more for this type of watch than they would have paid in 1941 for a clock-watch without this feature.

The trend toward the sale of a larger proportion of wristwatches is likely to continue in the post-war period, with a resultant increase in the average unit of nonjeweled watches sold. The estimated average retail price of a pocket clock-watch in 1941 was $1.50, while the wrist-watch sold for an average price of about $4.

A period of about 9 months is required for the completion of a jeweled watch. Therefore, unless some civilian watches are started in production before the war is over the domestic industry will be unable to supply its share of civilian needs for a period of a year or more after the end of the war.

Another factor which may delay the attainment of the domestic industry's potential level of production is the probable accumulation here of large stocks of uncased Swiss movements. These stocks are building up because of the shortage of watch cases during the war.

Industry 100 Percent in War

In 1942 the jeweled watch industry and the clock industry in the United States converted virtually 100 percent to the production of timepieces and other instruments for the use of the armed forces. Exceptions include the production of a small number of alarm clocks and railroad watches. Production of these items is being continued because railroad watches and alarm clocks are essential to the conduct of the war. The civilian population, however, is dependent upon Switzerland for watches. Some fear is felt in the industry that the large number of watches being imported at a time when domestic production has closed will place the industry at a disadvantage for a time after the war.

On the brighter side are the following factors:

The industry has expanded its capacity by training additional workers and adding equipment for new or increased production of devices such as stop timers, waterproof watches, and marine chronometers.

The domestic industry may find that the market for second-setting men's wristwatches (with sweep-second hand that is set in conjunction with the minute hand), self-winding watches, and highly styled ladies' watches is quite large. Until recently the domestic industry operated on the theory that the average consumer buys a jeweled watch once, or perhaps twice, in a lifetime. On this assumption the industry concentrated to a large extent on conservatively styled watches that would last a lifetime with proper care.

Another reason for this tendency toward conservatism is the fact that the techniques of mass production can be used for parts when the styling is not frequently changed. Switzerland, with a large number of small producers, can more readily introduce new styles. Thus, much of the potential market went by default to the Swiss producer of novelty and highly stylized watches. However,

the domestic industry was presenting some novelty and modish watches for several years before the present war. In the post-war period the production of watches "for every occasion" might lead to a demand greatly in excess of that of the pre-war era.

One step the industry may take toward getting a larger share of the consumer dollar is to educate users to take better care of their timepieces. Another is the training of more skilled watch repairmen. During the present shortage of skilled repairmen the tendency is to put the watch in a bureau drawer and forget it when it stops for lack of proper care. This may mean a lost watch customer.

Trade Names Important

The industry is aware of the need for keeping trade names before the public even though no watches are available for sale. Although the watch importer with an established name has the advantage of keeping the name and the product before the public, the domestic manufacturer is not so likely to be adversely affected after the war by the many new brands of imported watches now offered. Many people buy a certain brand of watch because of previous satisfactory service from that brand, received either personally or by family or friends. Such experience will continue to operate in favor of the domestic industry after the war.

The rate of import duty will be an important factor in determining the volume of jeweled watch sales after the war. If watches were declared duty free, the commodity's share in the gross national product, as indicated in "Markets After the War," would not be possible. This is because of the lower unit value that would be necessary for competition with Switzerland on a duty-free basis. The hand operations and adjustments required in the production of high-quality timepieces would not be possible. The dollar volume of retail sales of imported watches, also, would be reduced by a reduction or elimination of duties.

The branch of the clock industry which produces nonjeweled watches could probably more readily maintain its competitive position without tariff protection.

An examination of the table showing ratio of watch sales to gross national product will reveal the effect of prosperity periods on the watch business. Total expenditures in the United States were about the same in 1929 and 1940 and expenditures for watches were also about the same in those years. In 1941, with the rise in gross national product, the percentage of expenditures for watches rose. In the depression years of 1932 and 1933, the proportion of sales of watches to total expenditures was less than one-third of the ratio in 1941. If we disregard the additional effect on watch sales of a rise in gross national product above the $119,000,000,000 mark of 1941 and simply use the average proportion of expenditures for watches indicated in 1929, 1940, and 1941, we might anticipate watch sales of $330,000,000 in 1946. This assumes that the gross national product in that year will be at the hypothetical $165,000,000,000 level suggested in "Markets After the War." This also assumes no change from the present rate of import duties on watches. Such a figure is well within the capacity of the United States and Swiss industries as they probably will be constituted after the war.

Estimated Consumer Expenditures for Watches Compared With Total Expenditures

[In millions of dollars]

Year	Domestic watches [1]	Imported watches [1]	Total watch sales	Gross national product [2]	Ratio of watch sales to gross national product
					Percent
1929	95.4	99.8	195.2	99,400	0.196
1930	68.8	61.1	129.9	88,200	.147
1931	31.5	25.1	56.6	72,100	.078
1932	21.2	12.3	33.5	55,400	.060
1933	23.6	13.7	37.2	54,800	.068
1934	44.7	28.0	72.7	63,800	.114
1935	57.3	32.8	90.1	70,800	.127
1936	71.7	50.7	122.4	81,700	.150
1937	79.9	79.1	159.0	87,700	.181
1938	47.6	67.7	115.3	80,600	.143
1939	62.6	83.1	145.7	88,600	.164
1940	86.9	102.3	189.2	97,000	.195
1941	111.4	135.9	247.3	119,000	.208

[1] Jeweled and nonjeweled.
[2] From "Markets After the War."

Save Through Substitution

A saving of 40 million pounds of lead foil has resulted from the substitution of paper wrappings on cigarettes and smoking and chewing tobacco.

"Trouble Scooters" Aid War Production

The last word in cutting down absenteeism is the use of "trouble scooters," as illustrated by the experience of an aircraft manufacturing plant in Long Island. The trouble scooters—on the job day and night—are ordinary small trucks painted green, equipped with a full assortment of tools of all kinds and manned by two expert mechanics who rush to the aid of plant employees confronted with difficulties at home that might result in absenteeism. They are prepared for any emergency encountered by war workers, particularly women. Should a woman riveter suddenly remember, while at work on the assembly line, that she neglected to disconnect her electric iron at home, she simply notifies her foreman, who passes the word along, and a green truck scoots out to handle the situation.

Simplification in Industry Program

Taking the initiative in developing simplified practice recommendations to serve in lieu of WPB mandatory orders, the wire rope industry proposed a recommendation at the suggestion of the War Production Board. It was developed in collaboration with engineers of the wire rope industry, and its purpose is to conserve strategic materials and available productive capacity for the war program and essential civilian requirements.

Simplified Practice Recommendation R198–43 became effective February 15, 1943, and, having been accepted by a large majority of the industry, was approved for promulgation by the Department of Commerce through the National Bureau of Standards.

All concerned, including the War Production Board, are in accord with the proposition that if this recommendation can succeed as a definitely voluntary program there is no need to bedeck it in legal raiment.

A great many users of wire rope have learned about R198–43 from their customary suppliers, or through the columns of their trade papers. The National Bureau of Standards desires to inform *all* consumers that—

1. Their support of the fundamental purpose of R198–43 is as necessary to our war program as their fidelity in observing other aspects of our over-all plan for victory.

2. They will not be nonconformists if they specify a variety of wire rope that is not listed in R198–43, when they can demonstrate the essentiality of their choice to the satisfaction of their suppliers.

3. It is an infringement on the time of men and machines in wire rope factories to specify anything but a readily available variety of wire rope when those varieties that *are* available will serve the purpose.

Our Free Enterprise Gives More Social Gains Than Any Other System

New Textiles Loom on Peace Horizon

By Robert P. Sweeny
TEXTILE UNIT, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

AS THE FUTURE belongs to those who prepare for it, this article continues the analysis of "Apparel Markets After the War," which appeared in the July issue of DOMESTIC COMMERCE. Its purpose is to remind post-war planners of the vast storehouse of new fabrics and materials, made from natural fibers, synthetics, and combinations of both, that will be available, as never before, to clothing manufacturers when peace comes.

Cotton Fabrics

A wide range of new fabrics, both carded and combed, coarse goods and fine, of many varying weights and finishes, will be offered. Great strides have been made in finishing, and new developments will make it possible to obtain fabrics with better handle and draping qualities. Linen-like fabrics are being improved, and fabrics will be available with a more silk-like feel and appearance. Considerable progress has been made in finishing cotton goods to render them crease-resistant, which is highly desirable for dress apparel, particularly for men's cotton summer suits and cotton shirts. The perfecting of this process will open up an astonishingly large new field.

Of growing importance in fabrics for women's apparel and accessories is the extending line of prints with varied and beautiful designs, utilizing brilliant dyes with luminous qualities, which come within the realm of real art. This field is one well worth the time to explore on the part of the clothing manufacturer. Complete ensembles—dresses, hats, and handbags—as well as individual garments, may be developed from these fabrics.

Apparel manufactured for hot-weather wear, utilizing fabrics especially designed for coolness, presents splendid opportunities for post-war markets. Some progress has been made in the designing of open weaves, but there is much room for a broader development of this type of fabric, for which there is a big potential demand, especially for men's wear—underwear, shirts, and summer suits. The light, close-woven fabrics now largely used for summer wear retain the body heat and do not give the comfort obtainable from the use of open weaves with greater air permeability.

Rayon and Other Synthetics

Synthetic fibers are of growing importance, and in recent months many new ones, which enter into fabric construction in the form of filament or staple-fiber yarns, have been developed. The best way to evaluate the place of these fibers in the future markets is to match their potentials of performance against those of the older synthetics and of natural fibers such as cotton, wool, linen, and silk. After the war, nylon—now restricted to military use only—will no doubt enter into the manufacture of women's full-fashioned hosiery, as well as men's hosiery, on an even greater scale than formerly. Prior to the war, nylon was used in a limited way in making the so-called nylon-fleece coats for women and it is reasonable to believe that other uses will be developed in apparel for both men and women.

With further developments being made in the shrink-proofing of rayons and in perfecting washability, their usage, too, will widen in the apparel field. Another new development which has been given tremendous impetus by the war is that of the high-tenacity rayon cords. The entire output of this product is being used for military purposes, but it is believed that after the war this type of rayon will also be made into special fabrics which require extra strength and lightness, possible uses being for sportswear and athletic garments.

A recent remarkable development is a synthetic vinylite resin yarn having, it is claimed, high elastic properties, and for which there should be quite a large field after the war in certain types of garments. It is stated that this new material is not affected by body acids. Still another comparatively new fiber, having wool-like properties, is a casein synthetic made from skim milk. Then there is a protein fiber made from the soybean. Other synthetic fibers can be made to resemble straw, a suggested use being in hats, handbags, and a varied line of accessories. Fiberglas—a glass fiber—can be spun into filaments or made in short-staple form; woven fabrics are being produced from this material. While the major portion of the output is going into draperies and industrial uses, this fireproof material might be used to distinct advantage in some articles of apparel. One type of fiberglas is made to resemble silk, another type to resemble wool. It is also chemical- and heat-resistant, as well as waterproof.

Woolen and Worsted Fabrics

Under the urgency of war many new developments have taken place in the fabrication of the natural wool fibers. Research and experiment are now under way to chemically treat woolens to render them mothproof, and it would seem safe to believe that mothproofed woolens will be offered to the trade in volume after the war. Further developments in the blending of synthetic fibers with wool will make available special characteristics of feel and appearance in the resulting fabrics, as well as better draping qualities of the lighter weight goods, which will open up new outlets for garments.

As is generally known, all silk stocks were frozen at the outset of war for military uses. Many believe that when peace is restored silk will not regain the position it held prior to the war, since synthetic fibers have been replacing silk to a greater and greater extent. These fibers are being made to more nearly resemble silk in all its characteristics. In the fall of 1942, a rayon manufacturer announced the development of a new synthetic filament of extreme fineness to compete with silk. It is stated that it can be spun to ⅛ denier, which is many times finer than the natural silk filament. In fact, it is claimed for this

Courtesy of Steel Heddle Mfg. Co.
Weave room in a modern cotton mill.

fiber that it is the finest filament made by man or nature, and only the strand of the spider web rivals it in fineness. Its place after the war is expected to be in luxury fabrics and specialties.

Assuming a high level of employment in the post-war period, it can reasonably be expected that people will buy more elaborate wardrobes; for instance, women will buy complete ensembles of dress, hat, hosiery, and accessories to match, as opposed to limited buying, when times are not good, of individual garments to be worn with existing wardrobes. Men, also, buy matched apparel to a greater extent when incomes are high.

When peace comes people will take more extensive vacations at the seashore, in the mountains, and in travel, and for each of these they will outfit with suitable clothing of the recreational type. Because of the war these activities have been drastically curtailed, and wardrobes have become depleted and out of date. The same condition applies to summer and winter sports, each of which requires its specialized type of apparel and accessories—riding breeches and coats, tennis shorts and shirts, fishing clothes, hunting clothes, snow suits, skating outfits, and so on. New types of bathing suits, with some development along the line of inflatable vests for those who like to "swim out" and for learners, may be expected. Inflatable vests are a direct outcome of the war, and it is predicted that in modified form they will come into extensive use at the seaside and lake shores and will to some extent replace the old-type life preserver on yachts. Canoers might find excellent use for them, making this sport much safer.

Uniforms of the special work-clothing type for women and men in industry were used to some extent even prior to the war. And now that the war has given an added impetus to the use of the simple, well-designed, and safe work garment, it will undoubtedly carry over into peacetimes in a big way. The matter of economy in cost also enters into the use of work garments in preference to everyday clothes. There is also the field of "safety clothing." Certain types of employment are hazardous to the extent that special clothing is required to protect the worker, and war plants have been the cause of developing a complete line of such protective clothing as acid-proof garments, fireproof garments, where there is considerable fire hazard in the occupation, and clothing designed to protect against certain injurious fumes.

All in all, clothing manufacturers and others dealing in textiles assuredly will find no lack of materials—well-tested new ones as well as the familiar types—for use in their post-war operations.

Apparel Markets After the War

By Robert P. Sweeny

Textiles Unit, Bureau of Foreign and Domestic Commerce

It is industry's opportunity and obligation to provide full employment. To what extent will clothing and accessories sales contribute to this in the post-war markets? The answer to this question is of vital importance to all business interests engaged in the manufacture and distribution of these commodities.

A recent publication issued by the Bureau of Foreign and Domestic Commerce, entitled "Markets After the War," deals with commodity groups and their individual relationship to the gross national product. It does not forecast markets but, on the basis of known factors—the flow of goods and services in our national economy in past years—it develops some provocative thoughts on post-war market volume and trends which may serve as a guide to businessmen in formulating their plans for the after-war period.

Post-War Thinking

Conclusions can be wisely formed and practical plans formulated only by first giving thought to all angles of the proposition. The fact that the future contains many uncertainties is a reason frequently advanced for delaying action on plans for post-war markets. This is a mistaken idea. These very uncertainties constitute an added reason for planning now to combat them. Maturing plans now will give industry a decided advantage when peace comes. Foresight combined with action brings security.

In planning for post-war markets, the clothing and accessories trades might well study the desirability of making changes in their products with respect to better style and variety and the advisability of adding new items, for after the war many new fabrics will be available from which to choose. This may entail some new machinery and equipment, and possibly may involve plant changes. By working out plans now, the industry will be ready immediately after the war to place its orders for the necessary remodeling. This, in turn, will give employment to the machinery builder, who in turn places orders for raw materials. With a succession of businesses planning to convert quickly, a high level of employment and a large volume of business could be assured.

The demands of war have shown to what extent production in the United States can be stepped up when people are fully employed. "Markets After the War," arbitrarily assuming 1946 as the first peacetime year, presents figures to show that, with 96.5 percent of available manpower at work, the gross national product for that year would amount to 165 billion dollars. This is based on the further assumption that 1942 prices will prevail. With the working force of our country fully employed, the workers will have money with which to buy merchandise. This goes without saying, but it is the starting point from which to plan.

Industry has been accustomed in the past to thinking of demand for goods first, and naturally employment follows; but would it not be better to reverse this and think in terms of keeping employment up to the full level, which in itself creates the demand? Using this method of approach it becomes necessary to further analyze products to see that full advantage will be taken of new materials and that styling will be such as to create sales appeal.

Full Employment and Incomes

In the post-war era, with maximum employment and high incomes, will people buy proportionately more clothing? It is generally believed that they will. From an analysis of prosperous periods in the past in connection with buying habits, it is found that when employment is steady and incomes high, people buy larger-than-usual wardrobes. Then there are all the new developments that will create a demand for specific types of clothing. For instance, there will be more travel by plane after the war; also, the commercial expansion of air lines will bring about larger employment of aviators, pilots, stewardesses, and attendants. The merchant marine should not be overlooked as a potential market for officers' and sailors' uniforms. But more is said later about post-war demands.

Table II in "Markets After the War" shows the gross flow of services, finished commodities, and new construction, by years, from 1929 through 1941. Table III shows a comparison of 1940 expenditures with the hypothetical peacetime year 1946. These tables show values by commodity groups. In the present article we are particularly interested in the clothing and accessories group; accordingly, figures from table II for this commodity group are shown opposite.

Assuming the full utilization of available manpower and the 1942 general price level, it is estimated (table III) that 1946 expenditures for clothing and accessories will be $9,777,000,000, compared with the total of $5,698,000,000 shown in 1940 (table II) for such expenditures.

Some very interesting facts come to light when comparing the relationship of consumer expenditures for clothing with expenditures for other commodity groups. During the year 1939 a total of $65,293.5 million was spent for consumer goods and services, and of this amount $5,403.8 million, or 8.27 percent, went for clothing and accessories. Totals for 1941 were $80,968 million and $7,080 million, respectively. In this instance, 8.74 percent of the whole went for clothing and accessories, an increase of 0.47 percent over 1939 for that commodity group. This increase, when compared with data for other commodities as presented in table II ("Markets After the War"), indicates that as general employment expands the consumer spends proportionately more for apparel than for luxuries and semiluxuries.

Consumer Expenditures for Clothing and Accessories

[Millions of dollars]

Year	Expenditures	Year	Expenditures
1929	6,893.8	1936	5,129.2
1930	6,277.1	1937	5,217.5
1931	5,195.5	1938	4,845.6
1932	3,763.4	1939	5,403.8
1933	3,533.4	1940	5,697.8
1934	4,192.4	1941	7,080.0
1935	4,635.2		

Post-War Demand Sources

The savings of civilians, cash in banks and Government bonds as estimated in "Markets After the War," should amount to $40 billion to $60 billion if the war lasts to the end of 1944. This sum represents a tremendous buying power, and how rapidly this force will be unloosed can only be conjecture.

Another factor bearing on post-war demand for goods is derived from the movement of large groups of the civilian population of the United States to war production centers, as well as from other war-created travel. This has been educational, and people, as a result, will have acquired new and increased wants. This, in itself, should bring about greater buying.

While the supply of apparel has been fairly adequate to meet the civilian demand up to the present, wardrobes are being depleted and this will build up a deferred demand to be supplied after the war. Also, soldiers after being mustered out will need to replenish their clothing items and, provided industry plans now to give them employment, a great demand will come from this source.

In all probability, inventories of clothing and accessories held by jobbers and retail stores throughout the country will be far below normal at the end of the war. To fill this void alone will require considerable employment by manufacturers to produce the necessary goods.

Added to the foregoing there is a continually increasing demand from abroad for clothing for relief purposes. In every additional country our forces occupy, such demand is immediately established. After the war, the military requirements of our own forces and for Lend-Lease will fall off, but undoubtedly this will be offset, and possibly exceeded, by the need for clothing in the war-stricken nations of the world.

All factors point to full-time employment of our textile plants and clothing manufacturers for a considerable period after the war.

The responsibility for maintaining full employment should be industry's and not the Government's. The post-war markets contain industry's opportunity to shoulder its full obligation. If industry proves itself equal to this responsibility, it augurs well for the future exercise of free enterprise.

The Silent Salesman

The "silent salesman" is the brainchild of a Michigan manufacturer of paper products. Realizing that mileage rationing and difficulty of railroad transportation have greatly reduced salesmen's calls, this firm prepared its 1943 catalog to accord with present conditions, and designed the book to serve both as a catalog and as a salesman.

The new edition is more comprehensive than previous ones and contains many illustrations. For instance, the section devoted to bakery pan liners points out that use of the liners saves valuable fats and oils, prolongs the life of metal pans and equipment, reduces cake breakage and consequent return of merchandise, and cuts labor costs.

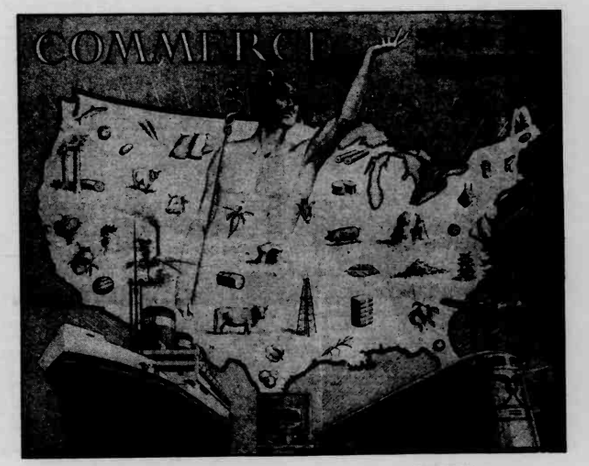
Hay Fever Sufferers, Please Note

The goldenrod plant may provide the answer to the vital rubber problem. The late Thomas A. Edison conducted extensive experiments with certain strains which showed greater rubber content than did the numerous wild species. After his death in 1931, the records of his experiments were turned over to the U. S. Department of Agriculture.

Experimental plantings of four selected strains of goldenrod, totaling 650 acres, were completed this spring by the Department of Agriculture as part of the 1943 emergency rubber program. The purpose of the present planting program is threefold: To determine the best locations, soil types, and methods of growing rubber-producing goldenrod; to obtain more complete information on possible yields; and to harvest a supply of goldenrod for testing extraction methods and the properties and uses of the rubber product.

Goldenrod does not require the use of nurseries for propagation. It may be planted directly in the field in the spring and harvested in the fall. Only the leaves of the plant are used. They may be processed immediately, or stored.

Contracts have been signed with farmers for preparing the fields and cultivating the crop. Special agricultural machinery has been developed by the Bureau of Plant Industry, Soils, and Agricultural Engineering, and is being tested on a large scale.



Consumer Travel in Post-War World

By E. C. Bratt,
National Economics Unit and
J. B. Crane,
Transportation Unit, Bureau of Foreign and Domestic Commerce

WHAT will consumer travel expenditures amount to in the post-war period? In the Department's recently issued study, "Markets After the War," expenditures for 70 commodity groups are projected, of which 11 show expenditures on either transportation services or transportation fuels, supplies, and equipment. The present article presents an analysis of projected expenditures for consumer transportation in 1946.

Table III of "Markets After the War" shows projected outlays for consumer transportation during the calendar year 1946 amounting to $4,159,000,000, compared with $2,352,000,000 for the year 1940, an increase of 77 percent. This increase compares with a projected rise of only 70 percent in the gross national product, from 97 billion in 1940 to 165 billion in 1946. The 1946 projections are based upon the assumption of reasonably full utilization of available manpower and a price level the same as that existing in 1942.

The term "consumer transportation expenditures" embraces purchased transportation, user-operated transportation, and foreign travel. Purchased transportation includes expenditures for services rendered by local and intercity steam and electric railways, bus companies, steamship lines, air lines, and taxicabs. User-operated transportation expenditures do not include expenditures for gasoline and oil and depreciation charges. Also excluded are all transportation expenditures for services which are for business purposes rather than for pleasure. To derive the figures used, therefore, it was necessary to take the expenditures on passenger transportation by the different types of carriers and allocate a certain percentage to pleasure travel and the remainder to business travel. In the case of steam railway passenger revenues, for example, it was decided, after careful consideration of the nature of passenger travel, that 70 percent could be allocated to nonbusiness, or consumer, travel.

Amounts spent for consumer travel, the value of the gross national product, and the relationship of these two are shown annually for the period from 1929 to 1941 in table A, below.

If each of the years from 1929 to 1941 is considered and allowance made for proportionately less travel expenditure as time goes on, the projected travel expenditures for 1946 would amount to $4,159,000,000, or 2.52 percent of the projected gross national product of that year.

The percentage spent on travel dropped from 3.33 in 1929 to 2.18 in 1941. If this decline were projected to 1946, the conclusion would appear to be that not more than 2 percent would be spent on travel. The resulting difference would be great. While a 2.52-percent expenditure totals $4,159,000,000, a 2-percent would result in $3,300,000,000.

Nevertheless, certain other factors should be taken into consideration. The great declines in percent spent on travel expenditure in 1940 and 1941 are largely the result of declining foreign travel in a war-threatened world. If as much had been spent on foreign travel in 1941 as in 1929, the total travel expenditure would have been 2.57 percent instead of 2.18 percent. This is a plausible comparison because gross national product was greater in 1941 than in 1929.

Another reason for the poor showing of travel expenditure in 1941 may be the rapid increase in gross national product in that year. Just as travel does not decline as rapidly in years of violent recession, it does not increase as rapidly in years of notably great improvement.

Table B shows the changes which have taken place in the four major types of travel. Noteworthy is the increase which has occurred in user-operated transportation—from 21 percent of the total in 1929 to 31 percent in 1941. The most important reason for this change is the shift to travel by personal automobile, but it is also partly attributable to the fact that the low level of foreign travel in the early 1940's makes the total expenditure for travel abnormally low at that time. Foreign travel represented 20 percent of the total expenditure in 1929 and only 8 percent in 1941. At high-level income and in a peaceful world it is reasonable to believe that foreign travel would represent an even greater proportion of travel expenditure than in 1929.

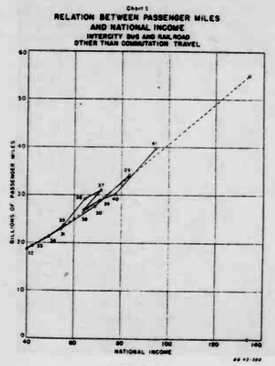


Table A.—Consumer Transportation Expenditures, Gross National Product, and Their Relationship, 1929–1941

[Millions of dollars]

Year	Column I: Total travel expenditures	Column II: Gross national product	Column I as percent of column II
1929	3,306	99,400	3.33
1930	2,965	88,200	3.36
1931	2,418	72,100	3.35
1932	1,883	56,400	3.34
1933	1,745	54,800	3.18
1934	1,907	63,800	2.99
1935	2,003	70,800	2.83
1936	2,266	81,700	2.77
1937	2,427	87,700	2.77
1938	2,293	80,600	2.84
1939	2,394	88,600	2.70
1940	2,352	97,000	2.42
1941	2,389	110,000	2.18
1946 (projection)	4,159	165,000	2.52

Source: Bureau of Foreign and Domestic Commerce.

Table B.—Travel Expenditures, by Types, for Selected Years

[Millions of dollars]

Year	User-operated transportation	Local transportation	Intercity transportation	Foreign travel	Total
1929	708	1,190	737	673	3,306
1933	494	755	302	263	1,745
1936	653	926	454	361	2,394
1940	714	945	642	220	2,352
1941	815	1,035	333	206	2,389

Source; Bureau of Foreign and Domestic Commerce.

When the diverse movements shown in table B are studied, it becomes clear that all types of transportation will not improve by the same percentage. The projected increase of 77 percent in consumer travel expenditure from 1940 to 1946, even if it represents the total travel expenditure reasonably well, will not apply to each separate type. It seems quite evident, for example, that a much greater increase than 77 percent may be expected in air travel, while something less than 77 percent may be anticipated for certain types of local and intercity travel by steam and electric railways.

Air-Travel Expenditures

It is interesting to note that the increase in domestic air-line passenger revenue between 1940 and 1942 was 41.5 percent, or from $52,788,000 to $74,721,000. The 1942 passenger volume resulted in spite of a restriction, amounting to nearly 50 percent, in the supply of air liners available and a consequent large decrease in the number of scheduled flights.

Air-line passenger revenue in 1946 may be expected to show a large increase over that in 1942. Among the factors responsible will be the larger, faster planes which will be available and a probable 20-percent reduction in fares because of economies in operation.

In 1942 the total passenger revenue received by the railways and the air lines from first-class passenger travel amounted to $503,924,000. If this same amount should be spent in 1946, and half should be spent for air travel, domestic air-line revenue would amount to approximately $252,000,000, or an increase of 377 percent over 1940. Such an estimate assumes availability of many planes for domestic flying and one level of air fares in the neighborhood of 4 cents per miles, and ignores the possibility of the establishment by the existing or new air lines of special air-bus service at fares of from 2½ to 3 cents per passenger-mile. Should the domestic air-line operators add this second-class service to their present first-class service, air-line passenger revenue in 1946 would probably be substantially larger than that estimated.

The estimated increase in air-line passenger revenue just given is for all passenger travel, both consumer and business. In the "Markets After the War" study, only 33.3 percent of all air-line passenger revenue was allocated to consumer travel, while 60 percent of Pullman travel by rail, after deducting Federal Government travel, was so allocated. As air-line travel increases rapidly year by year, an increasing percentage of total revenue should be allocated to consumer travel if consumers choose air as extensively as do business travelers. When allowance is made for this factor of increasing allocation, the percentage increase in consumer air travel between 1940 and 1946 should be substantially in excess of the 377-percent figure given.

National Income and Travel

The analysis in this study has been carried on principally by relating travel expenditure to gross national product. Gross national product includes business taxes and depreciation allowances taken by business. It is to be expected that travel expenditure will vary more directly with national income than with total national product when these items are taken into account.

The accompanying chart shows that a very close relationship existed between intercity bus and rail passenger-miles, when commutation travel is eliminated, and national income. The numbers at the points on the chart refer to the years involved. The number 29, for instance, refers to travel of 34 billion passenger-miles compared with a national income of 83 billion dollars in 1929. The dashed, slightly curved, line on the chart shows the general movement very clearly and falls close to all the years except 1936 and 1937. The exception in 1936 and 1937 is no doubt related to the fact that the consumer received abnormal cash funds in those years. Large payments were made in those years on soldiers' compensation certificates, and abnormal dividends were paid to avoid the undistributed profits tax.

If the trend line shown on the chart is projected to 133 billion dollars national income—the approximate figure expected with 165 billion dollars gross national product—a tremendous increase in travel of this sort seems probable. The chart shows a figure of 55 billion passenger-miles, compared with the high figure in 1941 of slightly less than 40 billion passenger-miles.

All types of transportation do not vary with national income in so consistent a fashion but it probably is true that projections could be made for other types of travel by various methods using the relationships which existed in the past. The chart presented here is only for illustrative purposes and shows some of the research possibilities in analyzing the future travel to be expected if high-level activity is attained.

No attempt is made here to forecast the actual level of travel expenditures after the war. The study does indicate, however, the possibilities of discovering important relationships by analysis of the past.

Also, it will be seen that the most probable developments differ substantially from the pattern in the immediate pre-war period. Temporarily, automobile traffic will be restricted substantially after the war simply because less than the full complement of automobiles can be produced and placed on the road. If a satisfactory peace is attained, foreign travel can be expected to reach much higher levels than those existing in the early forties. The widespread air travel to be expected would be fanciful if the war had not produced revolutionary changes.

Greater Travel Forecast

The post-war period appears to hold promise of very substantial increases in travel expenditures by 1946, but distributed differently than in 1940 or 1941. User-operated travel may increase little from the pre-war level as early as 1946 because of the limited number of automobiles in running order. General intercity travel may be more than 80 percent greater, as shown in the chart. Air travel may be five times as great because of technical developments during the war. Foreign travel may be three or four times as great because travel of this sort was extremely restricted in the early forties. Local transportation will have to show substantial increases, especially since many persons will be without automobiles. Possibly the 70-percent increase expected in national product may be applied to local transportation. If these estimates are put together, we get the following hypothetical pattern:

[Millions of dollars]

Type of travel	1940	1946 projection
User-operated	714	700
Local	955	1,700
Intercity (railroad and intercity bus)	445	800
Air	17	80
Foreign	220	800
Total	2,352	4,080

Source: Bureau of Foreign and Domestic Commerce.

The projection for 1946 of more than 4 billion dollars differs only slightly from the $4,159,000,000 expenditure projected in "Markets After the War," an inconsequential difference when dealing with such projections. It should be re-emphasized that no intention is implied to state what the expenditures will be for various types of transportation. If user-operated transportation is no greater in 1946 than it was in 1940, other forms of transportation will be called upon to replace the difference. High-level incomes and the desire for vacations may make foreign travel even greater than the substantial increase suggested above. If people have larger incomes they will spend them for something. Travel companies should attempt to obtain their due proportion.

By C. J. Judkins

DIVISION OF COMMERCIAL AND ECONOMIC INFORMATION, BUREAU OF FOREIGN AND DOMESTIC COMMERCE

A recent survey, which endeavored to ascertain the present trend of trade association activities, disclosed that post-war planning was voted as the most likely leader of the near future. Just what can an association do in this field, which seems destined for such a high place among cooperative organization services?

75 Percent May Soon Start

Chairman Constantine of the Post-War Planning Committee of the American Trade Association Executives, in commenting last month upon an ATAE sample study of representative groups, said:

"We learned that 75 percent are contemplating action and that almost 40 percent have already decided to give post-war planning an important place on their 1943–44 agendas. About 25 percent have set up special committees of their members; some of this group have assigned staff members to specialize in this new field of research which has such great possibilities of service to the general public, as well as to each industry. Very few have progressed, as of early May, to the stage of publishing a detailed report on just what steps the association plans to take; more can be expected soon."

Among those who outlined the progress thus far in their industries were Messrs. Beers (Institute of Carpet Manufacturers), Compton (National Lumber Manufacturers Association), Connolly (Associated General Contractors of America), Brand (National Fertilizer Association), Kinney (Portland Cement Association), and Donald (National Electrical Manufacturers Association).

Civilian-Need Planning

In late May came the victory of the United Nations in North Africa and this, plus growing success on the Russian and other fronts, has caused many associations to believe that their industries may be able to reconvert from a war-need to a civilian-need basis by 1945.

The phrase "Post-War Planning" can apply to a variety of types of future arrangements. In scope, it can be international, national, or local. In character, it can be political, legal, military, racial, financial, social, economic, and so on, including combinations of the above.

Wartime changes have been tremendous from practically all standpoints, especially economic (1943 factory production may total $145 billion, compared with $66 billion in 1940!).

Most American trade associations are concerned primarily with the economic type of planning—more specifically, that of achieving full after-war employment and a high standard of living under a free enterprise system with a minimum of Government control.

British Suggestions

The above objectives would also apply generally to many British trade associations, with the qualification that their interests are, naturally, much more international in character than are those of most associations in the more self-contained United States.

Nearly 200 organizations are affiliated with the Federation of British Industries. Its 1942 Report on Reconstruction comments upon problems similar to those in this country, such as war overexpanded industries, Government controls and Government-owned productive facilities, surplus post-victory war supplies, demobilization, and the necessity of steady jobs for all veterans. The following extracts convey suggestions to American associations, except as to the anti-trust law restrictions of this country which prevent concerted efforts on production and sales control, and so on (such as the clauses italicized in the British recommendations below):

"Each industry should have a trade association. Its objectives could include the general improvement and development of an industry by such means as interchange of statistics; standardization of methods and details of costings and interchange of costings; interchange of methods of working; centralization of research and experiment; technical education and commercial training; standardization of plant, machinery and produce; specialization; joint publicity and propaganda; regulation of the conditions and usages of trading and their application to the various industries; *centralisation and control of sales; demarcation of territory to allow orders to be allotted to the works geographically best fitted to carry them out; and the control of sources of supply of necessary materials.*"

Some Controls Needed

British associations seem to agree that part of the war controls on industry should be maintained for some years. The report states:

"There will be a shortage of goods, raw materials, foodstuffs, transport, and of savings for investment and lending—in many cases a world shortage . . . The methods of dealing with the vast number of new factories which have resulted from the artificial growth of certain industries and of arranging for the re-establishment of concentrated industries cannot be left to chance.

"The same holds good with regard to the method of dealing with accumulated stocks and the disposal of surplus stores . . . For the solution of all these problems a certain measure of regulation will be essential, probably for some years, until this country and the world settles down to its future shape.

"The danger of bureaucratic influence, and of the stifling of individual effort and of private enterprise, must be avoided . . . It will be desirable to control and spread over a considerable period the fulfilment of the immediate home market demand for consumers' goods. This means that rationing of many commodities will probably have to be continued beyond the war period."

Varying Readjustments

The post-war problems of many national associations in the United States differ to a marked degree, depending upon the extent of their expansion during the war period, their need of foreign markets or of foreign raw materials, the extent of recent Government control or financing of the industry, and so on.

Durable goods industries face the greatest problems, on the whole, for their wartime expansion in production facilities and in employment have been far out of line with peacetime needs. More than 2,000,000 additional wage earners have been taken on by the transportation equipment group of airplane, tank, shipbuilding, and allied industries!

New workers in the machinery groups exceed 1,100,000! Can the companies and associations in such fields so skillfully carry on future planning that huge, new, profitable markets will be available when "Transition Day" arrives and the gigantic Government purchases must cease? In the case of a few products, the transition period is already at hand; Government war needs have largely been filled and reconversion steps are under way.

Textile Group's Plans

Many industries have doubled or more than doubled the number of their employees, comparing early 1943 with 1939–40. The chemicals group and the two groups mentioned above have increased their rolls by 150 percent or more. Many others, however, should have a comparatively easy readjustment period. The textiles, lumber, food, and leather groups have expanded only about 10 percent or less in employment. Yet well-managed associations in such fields are not just drifting along and facing V-Day with full assurance that things will work out all right.

President Beers of the Institute of Carpet Manufacturers, a textile-group association, stated at a recent Win the War and the Peace Conference that his organization is starting to prepare sound, factual data and estimates on raw materials, plant and equipment, labor relations, research and engineering, budgeting, administration, distribution, industry consumer and trade promotion, styling, tariffs, Government controls, international agreements, corporate profits, and general economic trends.

The Committee for Economic Development, whose sole objective is to stimulate post-war planning, reports that several thousand national and local organizations already have secured free copies of its 12-page Handbook for Trade Associations, issued in May and devoted to post-war planning. Under the heading "Practical Suggestions for Association Procedure," the CED asks, "What can trade associations do now to stimulate new industry, find new markets, overcome the barriers to higher standards of living created by the emergency needs of war?" It states that upon the answers to questions such as these rest the whole future of the American trade association movement, and then gives the following suggestions:

1. Industry-wide discussion of post-war problems.
2. Creation of post-war committees made up of adequate membership representation to analyze, study, and report on markets and problems affecting them.
3. Development of data designed to forward industry's participation in putting men back to work.
4. Use of all forms of communication to stimulate public interest in the subject and to report on industry's progress.
5. Constant and complete information to members on post-war news as it develops in Government, industrial, or other circles.
6. Liaison with Committee for Economic Development on general business post-war happenings.

Three-Way Approach

American businessmen and their associations realize that the post-war needs for steady jobs will be enormous. Gigantic Federal purchases of war goods have greatly increased the pre-war total of civilian workers. The above CED report estimates that the December 1943 total of working civilians and military forces will be 63 million persons, compared with only 47 million in 1940, when 9 million were unable to find work.

Business realizes that some means must be devised to end this unhealthy situation. The CED is endeavoring, through field offices now being established, to promote future planning through three media—companies, local community groups, and industry groups (trade associations).

Association bulletins and regular trade journals have recently started to run detailed post-victory readjustment articles suggesting just how each manufacturing company can endeavor to estimate his future production potentialities, product by product, and job by job. All urge an expanded national economy based on detailed research.

The 1943 Commerce Department study, "Markets After the War" (free while the supply lasts), has been obtained by hundreds of associations. On page 21 of the pamphlet they may note the following encouraging statements:

"The country has demonstrated a capacity to produce almost fifty percent more than the best pre-war year—$142 billion of goods and services (in 1940 prices) as against an output of $97 billion in 1940.

"We have analyzed the conditions which will make a high output after the war a reasonable possibility: the purchasing power of a high income and its leverage on the demand for durable goods, the accumulated demand for goods and the accumulated savings as the result of the war, the needed investment in expansion of civilian goods industries to reach this high output."

Few Sources of Data

The Nation's two largest business organizations have set up special committees on various phases of post-war research—the latest National Association of Manufacturers report is the 48-page Jobs-Freedom-Opportunity, issued by the association's 92-man Post-War Committee, while the Chamber of Commerce of the United States has issued during the last month or two such material as the first four of a series of Post-War Readjustment Bulletins. The National Planning Association, among others, issues frequent reports. Trade associations also can obtain basic data on 450 individual manufacturing industries from the voluminous reports of the Bureau of the Census covering pre-war 1939, while current data on a lesser number are given in such publications as the Survey of Current Business of the Commerce Department and the Monthly Labor Review of the Labor Department.

Some Legal Limits

Just how far business competitors in the United States can go in bringing together their members' estimates on future output, and so on, through an association or other means, is a matter for legal counsel to determine. The American Trade Association Executives set up a committee last month to study the anti-trust laws on this subject.

The compilation of full statistical data on past transactions is clearly a proper function of associations, even though the possession of such facts may cause business competitors to reach similar conclusions, product by product, as to future sales possibilities, volume of production, inventory limits, selling prices, and so on. Particularly bearing on this is the Supreme Court decision handed down, in 1925, in the Maple Flooring Manufacturers Association case.

In general, English and Canadian associations can legally foster the reaching of mutual future plans by competitors to achieve steadier employment for their industry's workers, provided the public is not harmed by employers' agreements on production, prices, sales areas, or channels of distribution.

Depository of Post-War Plans

The Director of the Bureau of Foreign and Domestic Commerce has designated the International Economics and Statistics Unit as the Bureau's central depository of information on post-war plans of an economic character. In carrying out this work the Unit will undertake the maintenance of a select bibliography and file of post-war plans in various fields. And although emphasis will be placed on international plans, domestic and other national projects having international implications will also be covered.

Information concerning such plans from all responsible sources will be welcomed.

Tall Figures on Radio's War Role

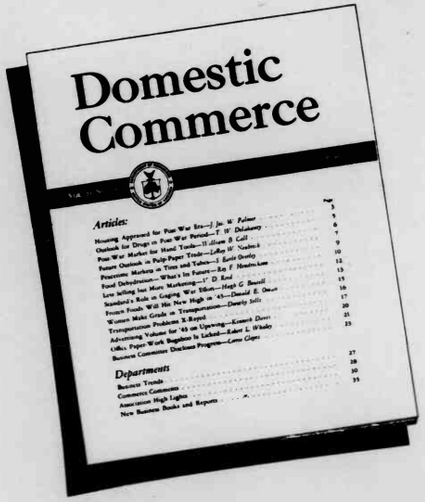
It's a well-known, accepted fact that radio has been a most potent plugger of Government campaigns designed to shorten the war. But the extent of this plugging over the air waves has been largely an unknown quantity until the Office of War Information recently surveyed the situation and made public the following statistics:

Under the National Spot Allocation plan, 85 programs sponsored by 70 advertisers broadcast much-needed war messages. These have amounted to 9,000,000 listener impressions per week.

The Station Announcement plan has been used by 891 stations to the tune of 8,000 messages per day. Over 50 programs have turned over complete shows on war themes. OWI estimates these would have cost over $13,000,000 for time and talent.

Of specific campaigns, the following shows the effectiveness of such volunteer promotion:

A 2-week campaign on glider pilot training filled every glider school in the country. In the nurse recruiting campaign, radio helped persuade 23,972 women to join. It helped increase Signal Corps enlistment 10 times over and Coast Guard 40 percent. It helped speed buying of coal 70 percent in the spring of last year. It helped add 30,000,000 people to the war bond pay-roll deduction plan.



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